REVISION OF THE GROUP *TRUXALES* *(ORTHOPTERA, ACRIDIDAE)*

BY

V. M. DIRSH

London

The original aim of this revision was the genus *Truxalis* Fabr. 1775, but during the work it became necessary to include all related genera, which form one well defined group named *Truxales*.

All materials of the British Museum (Natural History) and from almost all the main museums in Europe, some in Africa and from certain private collections were used for this work. The names of these museums are abbreviated as follows:

British Museum (Natural History).—(B. M.)
Oxford Museum.—(O. M.)
Madrid Museum.—(M. M.)
Paris Museum.—(P. M.)
Vienna Museum.—(V. M.)
Museum of the Belgian Congo, Tervuren.—(M. C.)
Geneva Museum.—(Geneva M.)
Genoa Museum.—(Genoa M.)
Stockholm Museum.—(St. M.)
Uppsala Museum.—(U. P.)
Basel Museum.—(Bas. M.)
Coryndon Museum, Nairobi.—(C. M.)
Pretoria Museum.—(Pr. M.)
Indian Museum, Calcutta.—(I. M.)
Dr. R. Ebner collection.—(E. C.)
Dr. C. Willemse collection.—(W. C.)

I am very grateful to the authorities of these museums and to the persons concerned for their kind assistance in providing the material. I am grateful also to Dr. B. P. Uvarov for his valuable advice in this work.

HISTORY OF THE GENUS *Truxalis* F.

Linné in 1758 (*Syst. Nat.* ed. X: 427, no. 11) described *Gryllus* (*Acrida*) *nasutus*, with «Alis sanguinolentis», and *Gryllus* (*Acrida*) *turritus* (l. c. no. 12) with «Alis hyalinis».

In 1764, Linné (*Mus. Lud. Ulr.* 118) redescribed *Gryllus nasutus* with a reference: «Syst. Nat. 427, n. 11» obviously meaning the same species which he described in 1758 under that name although the description says: «Alae viridi — albescentes». This redescription was obviously based not on the original type, but on a specimen or specimens of another species in the Museum Ludovicae Ulricae; the name and the reference leave no doubt that this was a case of misidentification which does not affect the original conception of *Gryllus* (*Acrida*) *nasutus* Linné 1758.

In 1767, Linné (*Syst. Nat.* ed. XII, T. I, pt. 2: 692) listed under *Gryllus* (*Acrida*): *Gr.* (*A.*) *nasutus* (l. c. no. 1) with *Gr.* (*A.*) *turritus* under the letter B and *Gr.* (*A.*) *brevicornis* (under no. 2). Thus, he still differentiated between *nasutus* and *turritus;* and although the wing coloration of *nasutus* is not mentioned, it is stated under *turritus* «Alis hyalinis». His reference to the X edition of the *Systema Naturae* makes it clear that his conception of the two species has not changed; his additional reference to *Mus. Lud. Ulr.* has obviously no value and *nasutus* L. 1767 = *nasutus* L. 1758.

Fabricius in 1775 (*Syst. Ent.* 279) proposed a new genus *Truxalis,* for the same three species as included in *Gryllus* (*Acrida*) Linné 1767. Fabricius' reference for *nasutus* «*Syst. Nat.*, II, 692, 1» (that is Linné 1767) makes the species the same as *nasutus* L. 1758; his additional reference to *nasutus* L. 1764 (*Mus. Lud. Ulr.*) can be ignored for the reason already stated. Thus *nasutus* Fabricius 1775 = *nasutus* Linné 1758.

In 1793, Fabricius (*Ent. Syst.* II, 26) quoted the genus *Tru-*

xalis to include *nasutus* L., with the same references as in 1775, and five other species, but *turritus* Linné is not mentioned.

Latreille in 1802 (*Hist. Nat. Crust. Ins.* III, 281) listed as «examples» of the genus *Truxalis* F. two species: *Truxalis nasutus* and *Tr. brevicornis* F. In a later edition of 1804 (p. 147), he listed *Truxalis nasutus* F. and *Tr. erythropterus* Drury (not originally included in *Truxalis* Fabr.); but in 1810 (*Gen. Crust. Ins.* 433) the type of the genus *Truxalis* Fabr. was formally quoted by him with the name *Truxalis nasutus* Fabr. which is the same as *Gryllus* (*Acrida*) *nasutus* Linné 1758.

Charpentier, in 1825 (*Horae Ent.* 126) was the first who completely and formally confused two Linnean species: *Gr.* (*A.*) *nasutus* L. and *Gr.* (*A.*) *turritus* L. under the name *Truxalis nasuta*. With references to *Mus. Lud. Ulr.* 1764 and *Syst. Nat.* XII ed. 1767, he quoted *turritus* as a pure synonym of *nasutus*. After that, almost all later authors began to apply the name *nasutus* L. to *turritus* L., a species with uncoloured wings.

In 1835, Brullé (*Hist. Nat. Ins.* 216) changed the transcription of the generic name to *Tryxalis* and quoted *Tryxalis nasutus* L. with references to Linné, *Mus. Lud. Ulr.*, and Fabricius, *Ent. Syst.* II, 26.

Fischer v. Waldheim in 1846 (*Orth. Ross.* 229, pl. X, fig. 1, 2) changed the transcription of the name to *Troxallis*.

Stål, in 1873 (*Rec. Orth.*: 104) restored the Linnean generic name *Acrida* for both *nasutus* and *turritus* (he differentiated them correctly) and for some allied species. The generic name *Truxalis* Fabr., he applied to *Gr. brevicornis* Linné and *angusticornis* St. (not originally included in the genus). In view of the previous fixation by Latreille of the genotype of *Truxalis*, Stål's action was not valid.

I. Bolívar in 1876 (*Orth. Esp. Port.* 102-103) applied the generic name *Acrida* in the same sense as Stål 1873 and also differentiated *nasutus* L. and *turritus* L. with reference to the X edition of *Syst. Nat.* He also, quite correctly, synonimised *Tr. unguiculatus* Rambur 1838 (*Faun. Ent. Andal.* 72) with *Tr. nasutus* L.

In 1882, Brunner v. Wattenwyl (*Prod. Eur. Orth.* 88) applied the generic name *Tryxalis* to *nasutus* Linné 1764 and *turritus* Linné 1758 and synonimised these two species under the name of *Tr. nasutus* L. 1764, which is inadmissible; he considered *Tr. unguiculata* Ramb. as a separate species.

In 1890, Kirby (*Sc. Proc. R. Dublin S.* VI, IX, 587) referring to Stål (1873) proposed *Gryllus brevicornis* Linné as the genotype of *Truxalis* Fabr. This proposal was not valid since the type of *Truxalis* Fabr. was already fixed by Latreille in 1810.

In 1893, I. Bolívar (*Feuil. Jeun. Nat.* XXIII, 163) divided the genus *Tryxalis* Fabr. into two subgenera: *Tryxalis* Fabr. and a new one *Acridella* I. Bol. The first comprised 10 species including «*nasuta*» L., which he interpreted according to Brunner Wattenwyl (1882). I. Bolívar's second subgenus included four species, amongst them *unguiculata* Rambur 1838, which he correctly synonimised in 1876 with *Gr. nasutus* Linné 1758.

Burr, in 1902 (*Trans. Ent. Soc. Lond.* 149) applied Stål's interpretation of the genus *Acrida* L. and completely ignored *Acridella* I. Bol. 1893.

In 1910, Kirby (*Cat. Orth.* 3, 90, 95) raised I. Bolívar's subgenera to the rank of genera: *Acrida* L. with the genotype *Gr. (Acrida) turritus* Linné 1758 and *Acridella* I. Bolívar 1893 with the genotype *Gr. (Acrida) nasutus* Linné 1758. The genus *Truxalis* Fabr. Kirby regarded as a separate one with the genotype *Gr. (Acrida) brevicornis* Linné 1767, which was incorrect in view Latreille's previous fixation.

In 1940, Gurney (*Ent. Amer.* XX, 92) pointed out that *Truxalis brevicornis* L. is the type of *Metaleptea* Brunner Wattenwyl 1893 (*Ann. Mus. Genova,* XXIII, 118).

Finally in 1941, Radclyffe-Roberts (*Trans. Amer. Ent. Soc.* LXVIII, 20, 21) restored the correct nomenclature of the genera: *Truxalis* Fabricius 1775, with the genotype *Gryllus (Acrida) nasutus* Linné 1758, with *Acridella* I. Bolívar 1893 as a pure synonym; and *Acrida* Linné 1758 with the genotype *Gryllus (Acrida) turritus* Linné 1758.

POSITION OF THE GROUP *Truxales*

After examination of the genus *Truxalis* and nearest genera some re-arrangements in the systematics of this group are necessary.

Dr. B. P. Uvarov has drawn my attention to the fact that representatives of the genus *Truxalis* Fabr. have femoral stridulatory pegs, whereas those of the genus *Acrida* L. have none. This character can be used for dividing the subfamily *Acridinae* into two groups, which may be regarded as tribes with the following diagnostic characters:

Tribe *Truxalini* n.

Internal face of the hind femur with a row of stridulatory pegs. Vena mediastina and vena radialis anterior of elytron convex, ridge-shaped; area mediastina and area scapularis prominent, pellucid, with regular sparse transversal veinlets (this character is more developed in males and less in females). Vena intercalata absent.

This tribe is named after the oldest genus *Truxalis* Fabricius 1775, and includes about one hundred genera examined by the author.

Tribe *Acridini* n.

Internal face of the hind femur without stridulatory pegs. Vena mediastina and vena radialis anterior not ridged; area mediastina and area scapularis not pellucid and not expanded (i. e. the stridulatory organ, as in the tribe *Truxalini*, absent). Vena intercalata present, sometimes irregular.

This tribe is named after the oldest genus *Acrida* Linné 1758, and includes about seventy examined genera.

Tribe *Truxalini* is well characterised by the stridulatory organ. Tribe *Acridini* is less sharply characterised and the presence of the vena intercalata approximates it to the subfamily *Oedipodinae*. The genus *Acrida* L. which has been hitherto associated with the genus *Truxalis* F. offers an excellent example of superficial parallelism in the two tribes. There are other parallel genera in the two tribes, which can be considered as parallel branches of the subfamily *Acridinae*.

The genus *Truxalis* F. and its allied genera form one well characterised group inside the tribe *Truxalini* with the following features:

Group *Truxales*

Body strongly elongated, ratio of total length to width (in the region of mesonotum) 17.5-6.2. Antenna flattened, expanded basally and tapering to the apex. Head strongly elongated, acutely conical, ratio of length of frons to the greatest width of head between cheeks 4.0-2.1. Frons concave in profile. Eye nearer to the apex of the head than to its base. Hind femur long and narrow, ratio of length to maximum width 22.9-8.8; sculpture on the external surface irregular and weak; hind knee with acute lobes.

The following seven genera compose this group:

Chromotruxalis gen. n.
Yendia Ramme.
Acridarachnea I. Bolívar.
Oxytruxalis gen. n.
Truxalis Fabricius.
Truxaloides gen. n.
Xenotruxalis gen. n.

Out of all known representatives of the group *Truxales*, only *Acridella tessmanni* Ramme 1929 (Mitt. Zool. Mus. Berlin, 15, 2: 250) remain unknown to me. Locality of this species, quoted by Ramme, is «Bosum, Uamgebiet, Grassteppe». From the description of this species it is impossible to decide to what genus it refers, because all generic characters are missing from the description.

MORPHOLOGICAL CHARACTERS OF THE GROUP

Body strongly elongated, narrow and almost cylindrical. Although the length of the body may vary in broad limits in the same species, the ratio fluctuates only insignificantly.

Antennae have 18-22 segments; this variation within the same species depends on the imperfectly divided 3-5th basal segments. Therefore the descriptions give the segmentation occurring in the majority of specimens, but not in all of them. Of greater taxonomic importance is the shape of antenna; this character is suitable for separating some genera and groups of species, as follows:

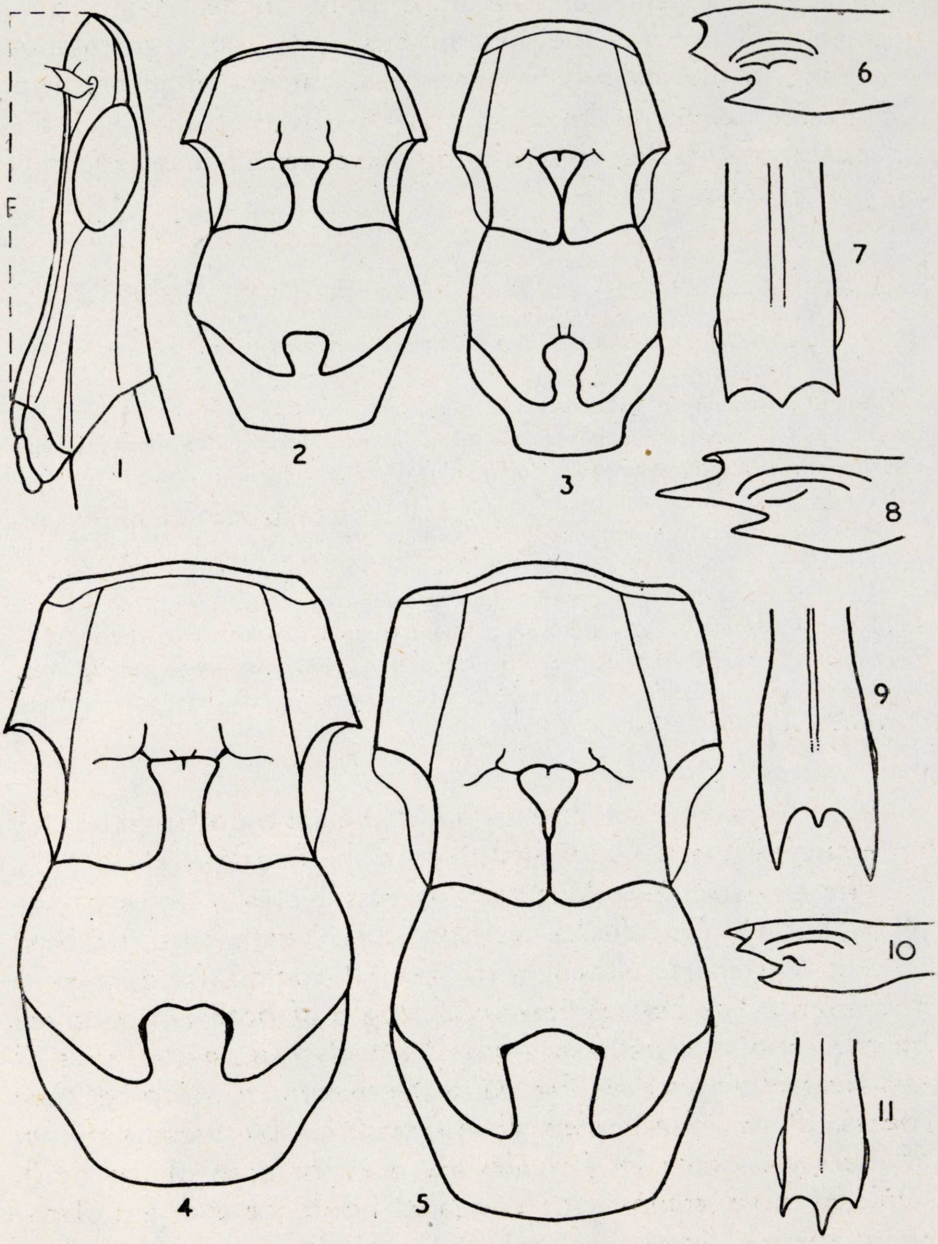
1. Antenna strongly broadened and gradually narrowing to the apex (Fig. 16). Group of *T. robusta*.
2. Antenna strongly broadened and suddenly narrowing in the apical third (Fig. 17). Group of *T. grandis*.
3. Antenna moderately broadened and gradually narrowing to the apex (Fig. 18). This is the most frequent type. Group of *T. nasuta* and other species groups.
4. Antenna extremely elongated and gradually narrowing to the apex (Fig. 19). This type of antenna is found only in *Truxalis longicornis*.
5. Antenna little broadened, gradually and little narrowing to the apex (Fig. 21). This type occurs in the short-body species of *Truxaloides* and in *Xenotruxalis*.
6. Antenna moderately broadened, gradually narrowing to the apex, with serrated external side of the base (Fig. 20). *T. conspurcata somalia*.
7. Antenna strongly elongated, broadened, and regularly narrowing to the apex, with closely connected segments, its lateral sides form a regular, extremely acute angle (Fig. 22). Genera *Yendia* and *Chromotruxalis*.

This division is not absolute and there are transitional forms; in the males it is less expressed than in the females.

Head is strongly elongated in most representatives of the group but in *Truxaloides serratus* and *Xenotruxalis* the head is relatively short, although its general conical form remains unchanged. The best expression of length of head can be given by the ratio of length of frons (from clypeus to the apex of fastigium of vertex; see Fig. 1) to the maximum width between cheeks. Other long-headed *Truxalini* differ by the disposition of the eyes, which in *Truxales* are near the apex of the head, while in other groups with elongated head, the eyes are placed about the middle of the head, the total elongation of which is a result of the elongated vertex.

Form of the fastigium of vertex has taxonomic importance. In some species this character varies, but its general type remain stable.

Pronotum has characters chiefly in the form of lateral carinae.



Figs. 1-11.—1) Measurement of frons. 2) Meso- and metasternum of male *Truxalis*. 4) Ditto of female. 3) Meso- and metasternum of male *Acridarachnea*. 5) Ditto of female. 6) Knee in profile of *Truxalis*. 7) Ditto, from above. 8) Knee in profile of *Truxaloides*. 9) Ditto from above. 10) Knee in profile of *Xenotruxalis*. 11) Ditto from above.

This character varies considerably in the same species, but has some taxonomic importance. The following are the main types:

1. Lateral carinae straight and parallel on the whole length (*Chromotruxalis*).
2. Lateral carinae straight and divergent or scarcely excurved in metazona (*T. robusta*).
3. Lateral carinae in prozona straight and parallel, in metazona excurved (group of *T. grandis*).
4. Lateral carinae in prozona more or less incurved, in metazona excurved (group of *T. nasuta* and others).
5. Lateral carinae in prozona sinuate, in metazona more or less strongly excurved (e. g. *T. conspurcata somalia, Truxaloides serratus, Xenotruxalis fenestrata* and many others).

Apart from broad limits of variation, sometimes there occur individual abnormalities; sometimes the carinae are sinuate, instead of straight or regularly curved. Postmortem deformation of carinae, especially the appearance of sinuate forms, may result from drying or preservation in liquid.

The form of the posterior margin of metazona and the disposition of the transversal sulcus also have some systematic value, but these characters vary in broad limits in some species.

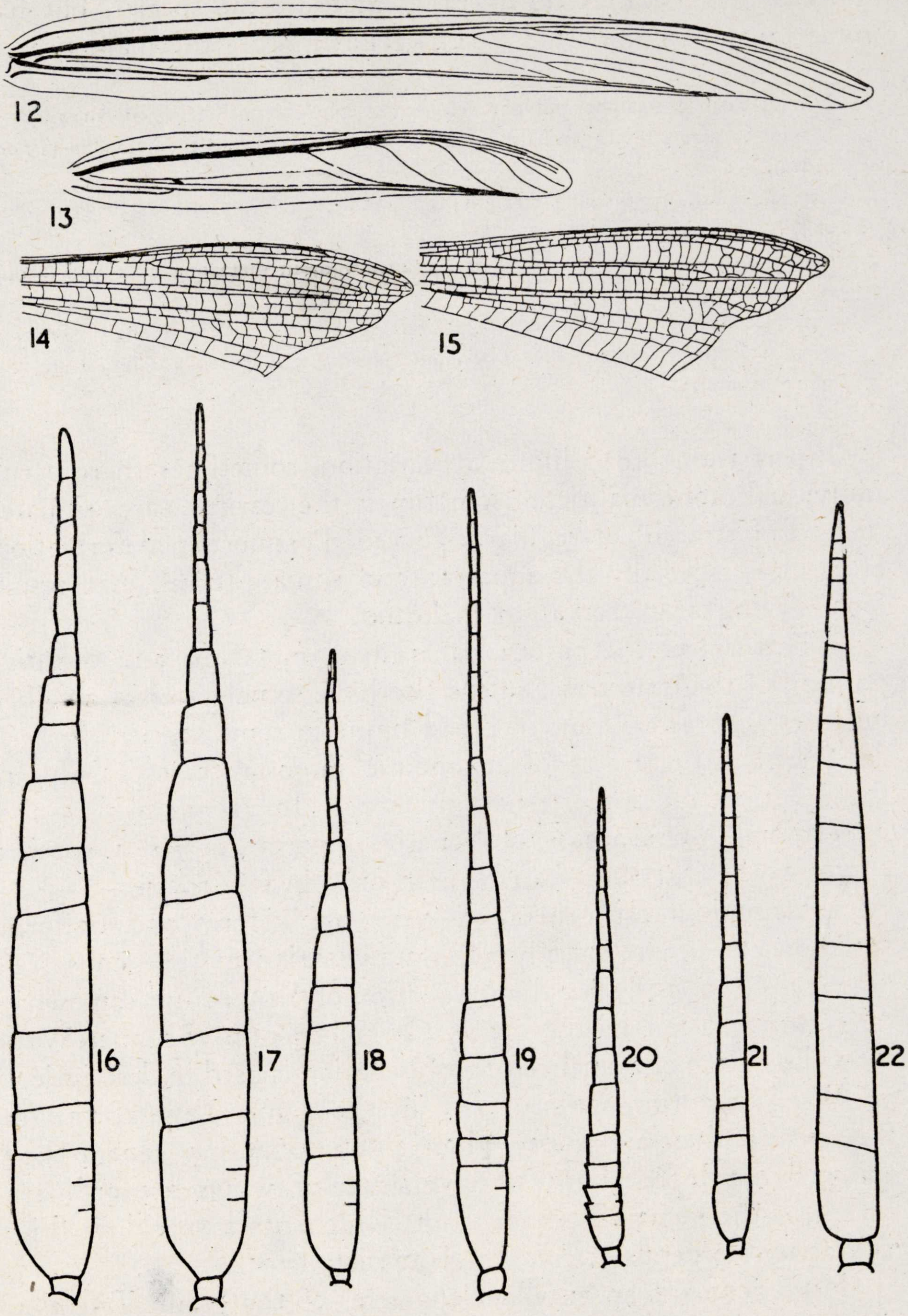
Sternal structure is of taxonomic importance, especially in the form of the mesosternal interspace. In *Acridarachnea* the mesosternal interspace is of generic importance. As a specific character the interspace can be used only in few species.

Elytron in most genera has very stable form and uniform venation except the sharply aberrant venation of the genus *Xenotruxalis* (Fig. 13), specialised venation of *Yendia* and somewhat different venation in the genus *Chromotruxalis*. Brunner-Wattenwyl's system of nomenclature of venation is used in description

Wings are rudimentary only in the genus *Yendia,* and in *Oxytruxalis* they are shorter than elytra; in other genera they are well developed. Form and venation of wings are ordinary except in the genus *Chromotruxalis* which has a speculum (Fig. 15), as in the genus *Acrida* L. of another tribe.

Hind femur is an excellent character of the group *Truxales;* the structure of the knee offers characters for some genera inside the group.

Arolium is of value for separating groups of species in the genus *Truxalis* and in some cases provides the best specific character.



Figs. 12-22.—12) Elytron of *Truxalis*. 13) Ditto of *Xenotruxalis*. 14) Apex of wing of *Truxalis*. 15) Ditto of *Chromotruxalis*. 16) Antenna, Type 1. 17) Ditto, Type 2. 18) Ditto, Type 3. 19) Ditto, Type 4. 20) Ditto, Type 6. 21) Ditto, Type 5. 22) Ditto, Type 7.

Subgenital plate has taxonomic importance only for the males. For *Chromotruxalis* its form provides a generic character.

Supraanal plate has no taxonomic value in both sexes since it is of almost the same structure.

Ovipositor is the same shape in all females of the group.

Chitinous genital structures. The phallic structures of males are of taxonomic value for genera and for groups of species. The whole group *Truxales* refers to the Cryptosacci group (Radclyffe-Roberts, 1941, Proc. Ac. Nat. Sc. Philad.) with closed ejaculatory sac and two pairs of aedeagal valves, which are connected together and have a simple form. A most distinctive character is provided by the structure of epiphallus, while the other sclerites, forming the basical phallic structures, are very uniform. The best differences are found in the structure of the lobes of lophi of epiphallus (Figs. 203-224).

The structure of spermatheca of females is similar in all examined species.

Colouration. General colouration varies only between green, yellowish and brownish, rarely greyish, but this is not a taxonomic character. More important is the colouration of wings and partly of elytra. Types of elytral pattern are as follows:

1. Uniformly coloured.
2. With a dark, narrow stripe along the ulnar veins, reaching the middle or the last quarter of elytron.
3. The same type as the second, but with an additional white or whitish stripe along the anterior margin of the dark one.
4. Two stripes (like type three), but the dark stripe has a more or less serrated anterior margin.
5. The same two stripes, but the white interrupted by projections of the dark one.
6. The white stripe divided into separate spots, enclosed in the dark stripe.
7. The middle of elytron with a row of large regular black spots limited by veins. This type occurs in *Xenotruxalis fenestrata* only.

In some cases a species has one characteristic pattern of elytron, but sometimes a species has two or three types of pattern; sometimes the pattern is indistinct and some parts of it disappear.

Most important is the colouration of the basal disc of the wing. This character has generic and specific significance. Of generic importance is the tesselated pattern of wing, formed by diffuse darkening of transversal veinlets. This pattern is peculiar to the genera *Truxalis, Oxytruxalis, Acridarachnea* and *Yendia;* in the last genus, this pattern is observed on rudimentary wings.

In *Truxaloides, Chromotruxalis* and *Xenotruxalis* the basal disc of wing is uniformly coloured or, in the two first genera, has the broad, dark fascia, but the transversal veinlets are never diffusely darkened.

In the genus *Truxalis* the wing colouration often provides specific characters which are more stable than the structural ones; for example, in *Truxalis procera* the structure of metazona of pronotum is more variable than the colouration of wings. In some species such as *T. grandis, T. nasuta* and *T. conspurcata* there are two extreme types of wing colouration: pinkish and bluish with all transitory shades between them. The intensity of wing colouration depends on the sexual maturation of the insect; often the young, recently moulted specimens, have almost uncoloured or scarcely coloured wings, which gradually acquire the normal colouration, becoming most intensive at the period of sexual maturation.

Ratios of measurements.

GENERA	Length of body	Length of frons	Length of hind femur	Length of elytron
	Width of body	Width of head	Width of hind femur	Width of elytron
Chromotruxalis	10.3-9.0	3.8-3.2	21.5-20.7	10.2-12.3
Yendia	17.5	4.0	22.9	28.0
Acridarachnea	10.3-9.3	3.5-3.0	20.1-17.6	11.0
Oxytruxalis	11.0	3.7	19.0	11.2
Truxalis	10.3-8.4	3.5-2.6	20.0-16 8	6.6-11.0
Truxaloides	9.3-6.2	3.9-2.1	14.0-8.8	7.2-9.8
Xenotruxalis	7.0	2.6	11.0	6.7

VARIATION OF SPECIES

The group *Truxales* and especially the genus *Truxalis* shows very small structural differences between species. Moreover, all characters especially in *Truxalis* and *Truxaloides*, vary so broadly that description of a species from a single type is only formal, and an examination of a long series from a wide range of areas is necessary.

Several kinds of intraspecific variation are observed in the group.

1. Variations connected with geographical distribution. For example, *Truxalis grandis* reaches its maximum size in the Anglo-Egyptian Sudan; in Egypt it is smaller and in Palestine and Arabia the smallest individuals occur. *Truxalis burtti* is smallest and most slender in Ethiopia, the colouration of the basal disc of wing is lightest and the size of coloured spot the smallest; in the southern part of its area, in S. Rhodesia, this species is bigger, more robust, the basal disc of wing is darkest and the coloured spot spreads over most of the wing. The differences are striking, but in the intermediate areas every possible intermediate form occur. *Truxalis nasuta* also exhibit variations in the size and colour, mostly in the West-East direction. Such kind of variation is observed in almost all well investigated and widely distributed species of the group.
2. Variations connected with ecological conditions occur in almost all species and may be both in colour and structure. *Truxalis grandis* varies in the same locality in the colouration of the basal disc of wings from blue in more humid places to pink in the drier ones. *Truxalis conspurcata* from mountains have purplish basal disc of wing and more robust body, but the more common form from lowlands has the wine-red colouration of basal disc of wing and less robust body.
3. Colour variation connected with age and sexual maturation (see p. 130).

4. Considerable individual variations, e. g. as in *Truxalis nasuta* (Figs. 139-145) and *Truxalis grandis* (Fig. 76) individuals of which may differ greatly in the same locality and ecological conditions.

I have not given names to most of these varieties, or regarded some of them as an indefinite taxonomic category-*forma* because the whole question needs further investigation on a larger material.

BIOGEOGRAPHY OF THE GROUP

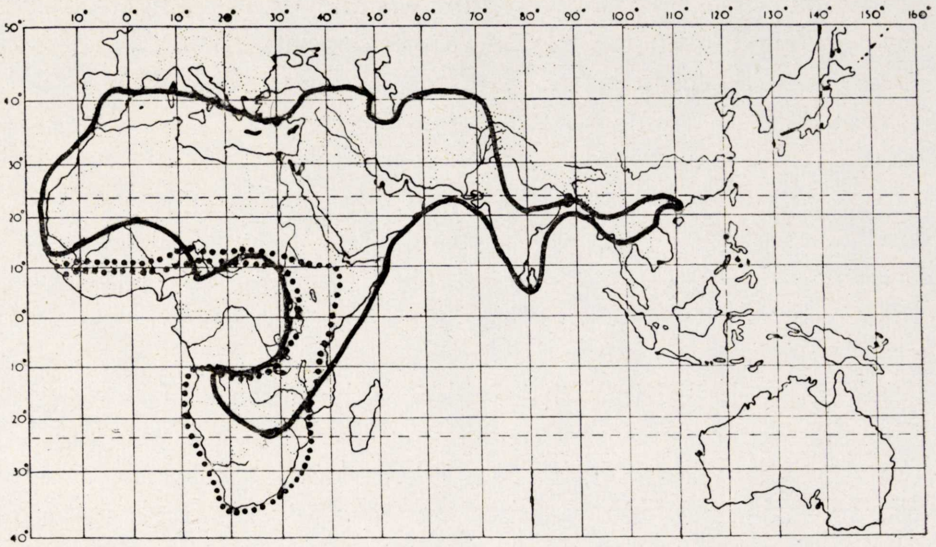
The group *Truxales* is distributed throughout Africa and the Canary Islands; in Europe it occurs in the southern part of the Iberian Peninsula, Southern Italy (Calabria), Southern Greece and on the Mediterranean Islands. In Asia it is found in all Middle East countries, Arabia, Middle Asia up to Ferghana in the north, India, Ceylon, Burma and Siam, almost reaching the Pacific coast in China (Map 1).

The genus *Truxalis* occurs over most of that area; but in Southern and South-Western Africa it appears to be partly replaced by the genus *Truxaloides*. *Yendia* and *Xenotruxalis* are known only from West Africa and *Oxytruxalis* is known from Socotra only. *Acridarachnea* occupies a narrow strip from the Atlantic coast across the continent to the Nile. The few records of *Chromotruxalis* all refer to Southern and South-Western Africa.

Most species of the genus *Truxalis* (and all other genera of the group) are found in Africa, especially in its north-eastern part and in south-western Arabia, which is faunistically more related to Africa than to Asia; in the rest of Asia there are only five really Asiatic species: *T. robusta, T. eximia, T. mesopotamica, T. indica* and *T. siamensis*. In Europa there is only a single species-*T. nasuta*.

If we compare the area of the group with vegetation, it coincides with the zones of deserts, semi-deserts, grasslands and savannahs. This distribution of the group depends, firstly, on the ecological, and, secondly, on historical factors.

Most species of *Truxalis* are connected with sparse tufty graminaceous vegetation with open ground between them, but some species, e. g. those of the group *Truxalis grandis* have a broader ecological range and occur also amongst denser vegetation and even in cultivated fields, but are always connected with *Gramineae*.



Map. 1.—Distribution of the genus *Truxalis* (solid line), and the genus *Truxaloides* (dotted line).

I have investigated the intestinal contents of almost all species of the group and found in all cases remains of grasses only. In some species, like *T. siamensis,* which extends to the forest zone, also only grass was found in the intestines.

The structure of mandibles is also of the graminivorous type (Isely, 1944, Ann. Ent. Soc. Amer., 37).

Close connection with the gramineous vegetation is also indicated by the body shape of *Truxales* resembling a gramineous stem; long and slender legs, narrow and long elytra and even the colouration are perfectly adapted to the environment. Morphological characters of nymphs show an even closer adaptation to the environment, because the supraanal plate of nymphs in both sexes is strongly elongated. For all these reasons it is possible to suggest very ancient adaptation of the group *Truxales* to grassland habitat. The connection of *Truxales* particularly with grassland of dry type is reflected in the structure of ovipositor. In all species of the group it is short and robust, adapted for digging in hard dry soil.

There is no direct evidence about the history of the group. It is known that the family *Acrididae* is one of the younger groups of *Orthoptera* unknown from mezozoic deposits (Martynov, 1938, Trav. Inst. Paléont. Ac. Sc. URSS, 7). The subfamily *Acridinae* is probably the youngest, although Zeuner (1942) quoted closely related fossil *Oedipodinae* from lower Miocene. Fossil representatives of the tribe *Truxalini* are known only from Pleistocene and all of them belong to the recent genera: *Podismopsis* Zub., *Stenobothrus* Fisch., and *Chorthippus* Fieb. (Zeuner, 1942, Ann. Mag. Nat. Hist., 11, 9, 304). No fossil representatives of the group *Truxales* are known.

As regards distributional evidence, the absence of the group *Truxales* from America, Madagascar, and Australasia suggests that the formation of this group took place after the separation of these countries from Africa and Asia. But geologists assign very different dates for these events. Furon (1941, La Paléogéographie, Paris) assumed connections of Madagascar and America with the African continent as late as Pliocene.

It will be seen that the best evidence about the past of the group consists of the morphological and biological characters, which indicate that the history of the group should be closely connected with the development of dry grasslands. American palaeobotanical records indicate that «Open prairie apparently began to develop early in the Eocene; the particular development of the xeric grasslands must have taken place in Miocene and Pliocene times» (Osborn, 1910, Cit. after Elias, 1942, Geol. Soc. Amer., 41). In the Eastern hemisphere some authors (Komarov, 1943, Acad. Sc. URSS; Wulf, 1944, Acad. Sc. URSS) suggested that the time of the greatest development of grasslands was in Pleistocene. It is, therefore, probable that the formation of the group *Truxales* was in progress in the Pleistocene.

With regard to the place of origin of the group it is possible also to suggest only some indirect considerations. North Eastern Africa and Western Arabia have the most numerous species of the genus *Truxalis*, but it is possible they are the areas of secondary prosperity of the genus, but not necessarily of its origin. The most probable area of origin of the group is Asia, because the majority of the genera of the tribe *Truxalini* occur in that continent, mostly in its South Eastern part.

KEY TO GENERA

1 (2). Elytron extremely long and narrow, ratio of length to width 28, with pointed apex. Wing rudimentary.......... *Yendia*

2 (1). Elytron long and moderately narrow, ratio of length to width 6-12. Wing well developed or a little shorter than elytron.

3 (4). Mesosternal lobes connected; mesosternal interspace inverse-triangular (Figs. 3, 5), closed behind.......... *Acridarachnea*

4 (3). Mesosternal lobes broadly separated; mesosternal interspace elongated or transversal but never triangular and always open behind (Figs. 2, 4).

5 (6). Wing with lustrous speculum (Fig. 15). Lateral carinae of pronotum straight and parallel throughout (Figs. 23, 24, 29, 30, 35, 36). Elytron with acute apex. Male subgenital plate strongly elongated and acute (Figs. 27, 33, 39).......... *Chromotruxalis*

6 (5). Wing without lustrous speculum (Fig. 14). Lateral carinae of pronotum always excurved in metazona, in the prozona of different form. Elytron with subacute, obtuse or rounded apex. Male subgenital plate short and obtuse or subacute.

7 (10). Wing with tessellated pattern formed by darkened transverse veinlets.

8 (9). External and internal lateral upper lobes of the hind knee of equal length (Figs. 6, 7). Elytron equal width on whole length. Wing almost as long as elytron.......... *Truxalis*

9 (8). Internal lateral lobe of the hind knee sligtly longer than external one. Elytron strongly narrowed in the apical half; wing one fifth shorter than elytron.......... *Oxytruxalis*

10 (7). Wing without tessellated pattern formed by darkened transverse veinlets.

11 (12). Internal lateral upper lobe of the hind knee longer than external one; middle lobe shorter than both lateral ones (Figs. 8, 9). Main veins of the elytron straight, weakly curved to the posterior margin in apical part (Fig. 12).......... *Truxaloides*

12 (11). External lateral lobe of the hind knee longer than internal one (Figs. 10, 11); middle lobe longer than both lateral ones. Apical branch of the vena radialis media and all branches of the vena radialis posterior strongly curved to the posterior margin (Fig. 13).......... *Xenotruxalis*

CHROMOTRUXALIS gen. n.

(Figs. 15, 22.)

Genotype: *Acrida cockerelli* Uvarov, 1932.

Body strongly elongated and slender, ratio of length to width 10.3-9.0.

Antenna strongly elongated, narrow with straight margin. Head strongly elongated conical, ratio of length to width 3.8-3.2. Fastigium of vertex large, broadened.

Pronotum long, flat, with single transverse sulcus in the middle; lateral carinae straight, parallel or scarcely divergent. Mesosternal lobes separated; mesosternal interspace elongated.

Elytron long and narrow, ratio of length to width 10.2-12.3, with pointed apex. All main veins and their branches straight, apically weakly recurved to the posterior margin. Area mediastina and area scapularis feebly widened. Wing rather shorter than elytron, moderately narrow, with a lustrous speculum; basal disc of wing brightly coloured, without tessellated pattern.

Hind femur long and narrow, ratio of length to width 21.5-20.7. Hind knee with equally short upper lateral lobes and with a small median lobe. Arolium large, longer than claw.

Male supra-anal plate triangular, simple. Cercus short, narrow, subacute. Subgenital plate strongly elongated and acute.

Epiphallus (Figs. 203, 204) with comparatively small ancorae, moderately narrow bridge, broad and strongly projecting lateral plates and weakly bilobate lophi.

Supra-anal plate of female obtusangulate; subgenital plate broadly trilobate. Ovipositor short, robust, with broad, slightly curved valves.

KEY TO SPECIES

1 (2). Basal disc of wing blood-red, without any fascia.................. *crocea* (Bol.)
2 (1). Wing with coloured basal disc and with a broad, sharp, dark fascia.
3 (4). Larger (♂ 63, ♀ 75). Antenna half again as long as head and pronotum together. Basal disc of wing orange-red.......................... *liberta* (Burr.)
4 (3). Smaller (♂ to 47, ♀ to 61). Antenna one third again as long as head and pronotum together. Basal disc of wing yellow.................. *cockerelli* (Uv).

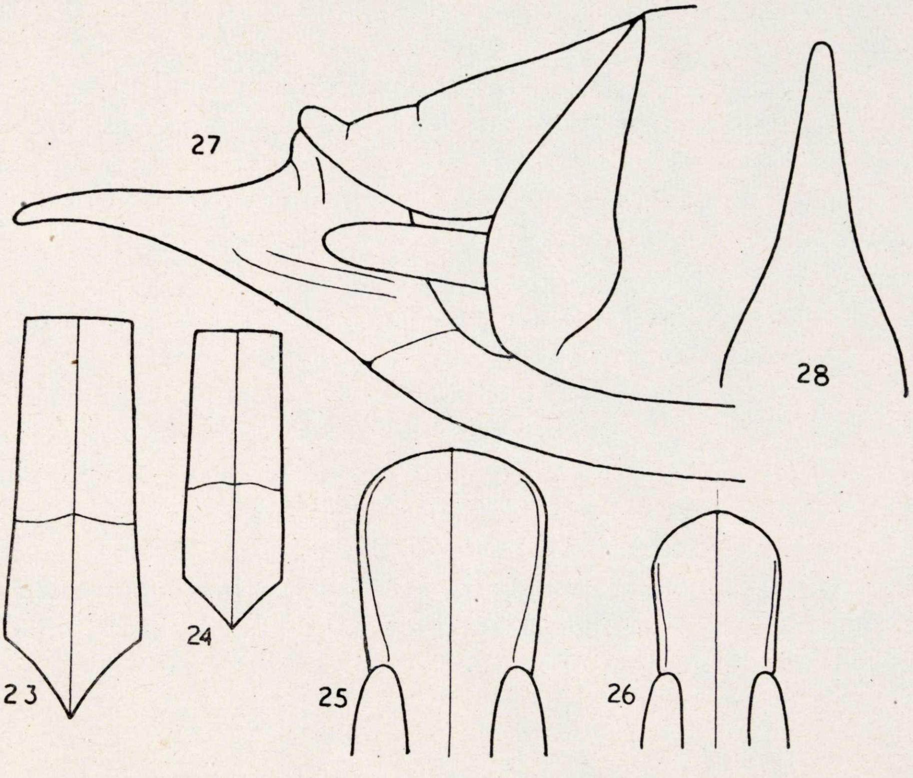
Chromotruxalis cockerelli (Uv).

(Figs. 23-28, 209.)

1932. *Acrida cockerelli* Uvarov. Ann. Mag. Nat. Hist. Ser. 10, 9: 172-174, pl. V.

♀. Medium size and slender.

Antenna about one third again as long as head and pronotum together. Fastigium of vertex weakly broadened to the apex, which is broadly rounded.



Figs. 23-28.—*Chromotruxalis cockerelli*. 23) Pronotum of female. 24) Ditto of male. 25) Fastigium of vertex of female. 26) Ditto of male. 27) Subgenital plate of male in profile. 28) Ditto apex from above.

Lateral carina of pronotum straight, scarcely divergent backwards; disc of the pronotum flat; posterior margin of metazona acutangulate, with weakly incurved sides; ratio of pronoza to metazona — 1.1. Mesosternal lobe broadly rounded; mesosternal interspace twice as long as broad, widened to the apex. Metasternal interspace twice as long as broad.

Elytron long and narrow, ratio of length to width — 10.4, with acute apex and straight anterior margin.

Hind femur long, little produced beyond the apex of the abdomen. Hind knee with short, subacute lobes. Arolium large, one fourth longer than claw.

General colouration green; elytron green with dark longitudinal stripe along the vena ulnaris, which reaches two thirds the length of elytron; basal disc of wing intensely yellow; in the middle of wing; from anterior margin to the posterior and internal margin, broad, sharp, dark brown fascia; the apical part colourless.

♂. As the female but rather smaller. Subgenital plate long and narrow, strongly acute at the apex. Colouration as in the female, except elytron, which is uniformly green.

Length of body ♂ 45-47, ♀ 55-61; frons ♂ 11-12, ♀ 12-14; pronotum ♂ 6.5-7, ♀ 9-9.5; elytron ♂ 38-41, ♀ 50-53; hind femur ♂ 26.5-28, ♀ 33-34.

BELGIAN CONGO: Katanga, 8-11.VIII.1931, 1 ♀ (Type) (T. D. A. Cockerell) (B. M.).

ANGOLA: Distr. of Luchase, River Quangu, 5,000 ft., 14-15.X.1927, 2 ♂♂. Distr. of Moxico, Villa Luso, 3,000 ft., 1-9.VI.1927, 1 ♀. Distr. of Moxico, River Lungue Bungu, 7.X.1927, 1 ♀. Distr. of Bihe, Cohemba, 1,330 ft., 21.VIII.1927, 1 ♀, 1 ♂. (M. Burr.) (B. M.)

This species is nearest to the *Ch. liberta* (Burr), but differs strongly in its size, shorter antenna, much lesser sexual dimorphism and colouration of wing.

Chromotruxalis liberta (Burr.).

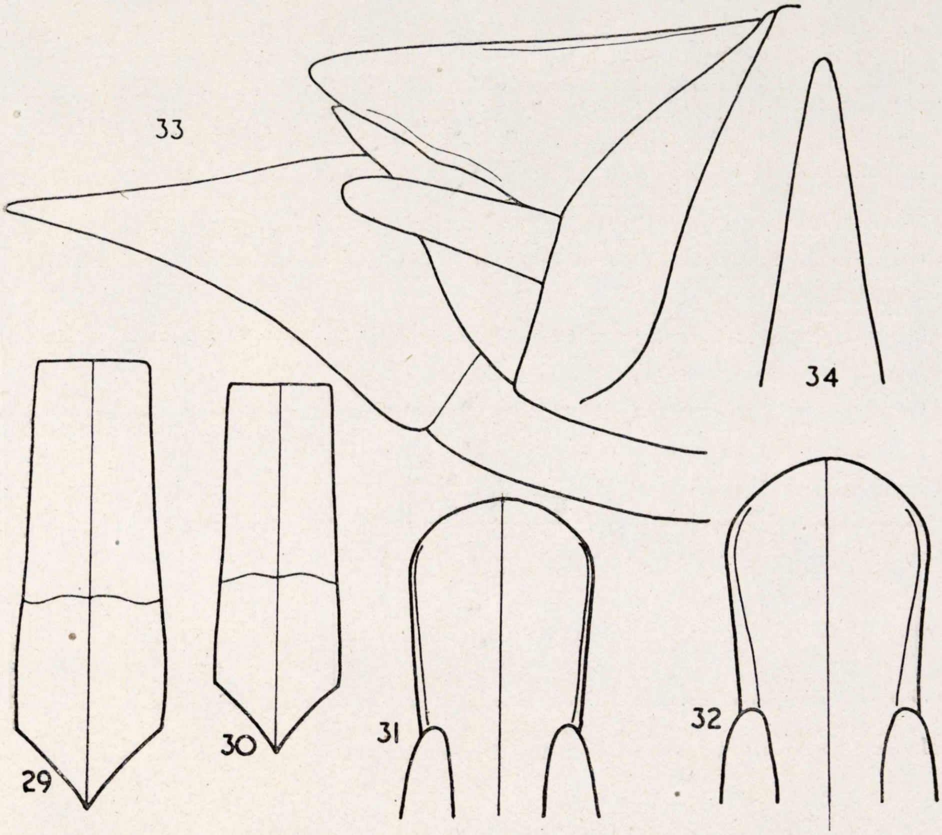
(Figs. 29-34.)

1902. *Acrida liberta* Burr., Trans. Ent. Soc. London, 2: 160.
1910. *Acrida liberta* Kirby, Cat. Orth., 3: 91, no. 3.

♀. Large and very slender.

Antenna half again as long as head and pronotum together, with strongly elongated segments. Fastigium of vertex slightly broadened to the apex, which is broadly rounded.

Lateral carina of pronotum straight, slightly divergent backwards, disc of the pronotum flat; posterior margin of the metazona acutangulate, with weakly incurved sides; ratio of prozona to metazona — 1.1. Mesosternal interspace long and narrow, broadened at the apex. Metasternal interspace long, in the base narrow, with strongly broadened apex.



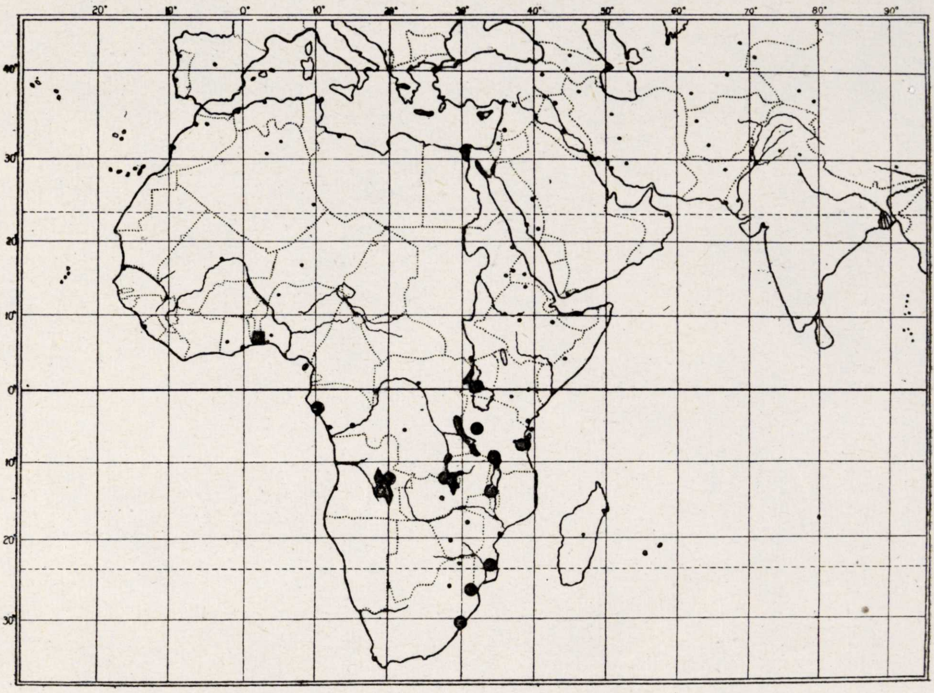
Figs. 29-34.—*Chromotruxalis liberta*. 29) Pronotum of female. 30) Ditto of male. 31) Fastigium of vertex of male. 32) Ditto of female. 33) Subgenital plate of male in profile. 34) Ditto, apex from above.

Elytron long and narrow, ratio of length to width — 12.3, with strongly acute apex and straight anterior margin.

Hind femur long, projecting well beyond the apex of the abdomen. Hind knee, with short, acute lobes. Arolium large, slightly longer than claw.

General colouration green, slightly yellowish; elytron uniformly light green with slightly brownish apex; basal disc of wing orange-red, with broad, sharp, dark brown fascia, which begin from the speculum and pass to the posterior margin of wing; the apical lobe colourless.

♂. As the female, but smaller. Subgenital plate sharply acutangulate, in profile, and strongly narrowed from above. Colouration as the female.



Map. 2.—Distribution of the genus *Chromotruxalis*. ◆ — *C. cockerelli*. ■ — *C. liberta*. ● *C. crocea*.

Length of body ♂ 63, ♀ 75; frons ♂ 14.5, ♀ 15.5; pronotum ♂ 8, ♀ 10; elytron ♂ 53, ♀ 66; hind femur ♀ 38.

SUDAN: Kaig, 29.II.1904, 1 ♂ (C. Singer) (B. M.).

UGANDA: 90 m. Hoima Rd., 31.I.1934, 1 ♀ (H. B. Johnston) (B. M.).

This species was described on a single female from Slave Coast. Three specimens of this species are now known.

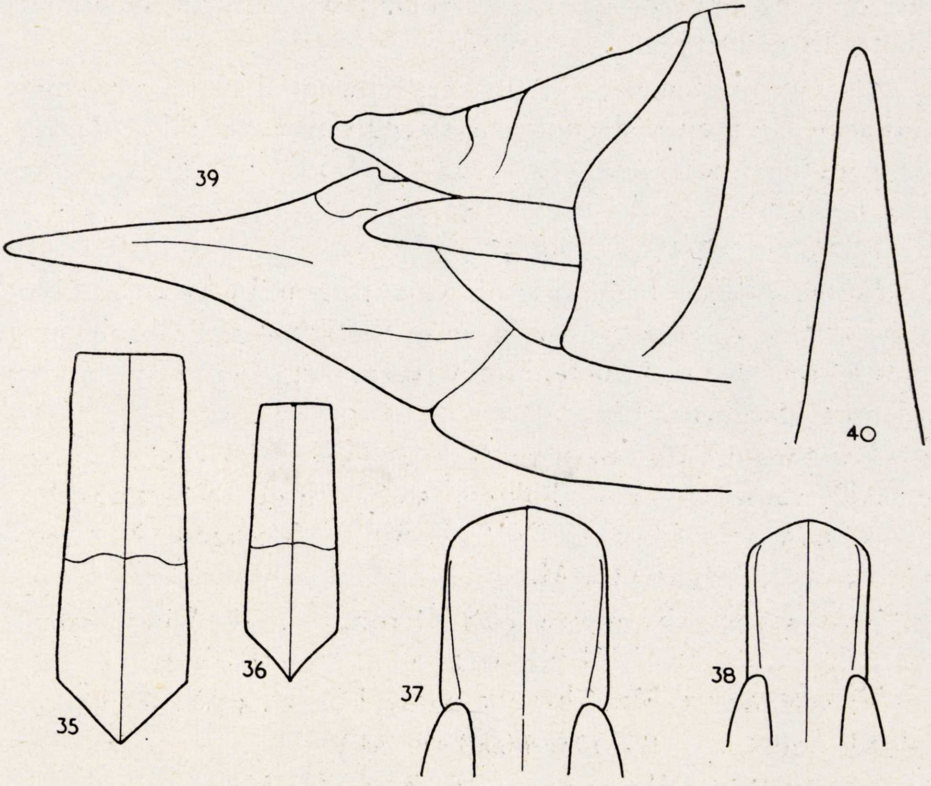
Chromotruxalis crocea (Bol.).

(Figs. 35-40, 204.)

1889. *Tryxalis crocea* I. Bolívar, Jorn. Sci. Lisb., 2, 1: 91, no. 52.
1910. *Acrida crocea* Kirby, Cat. Orth., 3: 91, no. 4.

♀: Large and slender.

Antenna half again as long as head and pronotum together. Fastigium of vertex large, with parallel lateral sides and broadly rounded apex.



Figs. 35-40.—*Chromotruxalis crocea*. 35) Pronotum of female. 36) Ditto of male. 37) Fastigium of vertex of female. 38) Ditto of male. 39) Subgenital plate of male in profile. 40) Ditto, apex from above.

Lateral carinae of pronotum straight, scarcely divergent backwards, disc of pronotum flat, posterior margin of metazona acutangulate with weakly incurved sides; ratio of prozona to metazona — 1-1.1. Mesosternal interspace twice as long as broad, slightly broadened at the apex. Metasternal interspace two and a half times as long as broad.

Elytron long and narrow, projecting far beyond the hind knee; ratio of length to width — 10.2-10.5; its apex strongly acute, anterior margin straight.

Hind femur long, little projecting beyond the apex of the abdomen. Hind knee with short subacute lobes. Arolium large, one third longer than claw.

General colouration brownish or greenish, sometimes all body and elytron densely dotted by small irregular black spots. Basal disc of wing fire-red, apical part colourless; veinlets sometimes lighter than membrane.

♂. As the female, but smaller. Subgenital plate very long and acute, in profile; from above strongly narrow and acute.

Length of body ♂ 49-52, ♀ 64-73; frons ♂ 11.5-12, ♀ 15-16; pronotum ♂ 7-8, ♀ 11-12.5; elytron ♂ 43-46, ♀ 64-67; hind femur ♂ 28-31, ♀ 40.5-42.

Forma *pallida*. Basal disc of wing pale-milky coloured. No other difference either in males or in the females. Probably immature specimens. Geographically occur together with bright coloured specimens.

TANGANYIKA TERRITORY: Kalula, Tabora d. 05.00 S. 31.50 E., 2.IX.1925, 1 ♂, 1 ♀. Tukuyu, 5,084 ft., 09.10 S. 33.45 E., IX-X.1925, 17 ♂♂, 10 ♀♀ (N. C. E. Miller). Morogoro, XI.1939, 1 ♂, 3 ♀♀ (E. Burtt) (*B. M.*).

NYASALAND: Namiwawa, 28.XI.1922, 1 ♀ (C. Smee). Zomba, 2,000-3,000 ft., VIII-XI.1912, 1 ♂, 1 ♀ (*B. M.*).

MOZAMBIQUE: Mt. Chirinda, Gaza Ld., 28.30 S., 33.53 E., XI-XII.1906, 1 ♀ (D. Odendaal) (*B. M.*).

SWAZILAND: XI.1942, 1 ♀ (E. Burtt) (*B. M.*).

BELGIAN CONGO: Ht. Katanga, Tshikolobwe, 23.X.1930, 2 ♀♀, 30.VII.1930, 2 ♂♂ (J. Romieux) (*Geneva M.*).

ANGOLA: Dist. Bihe, Cohemba, 1,330 m., VIII-IX.1927, 2 ♀♀. Dist. Moxico, Valley of river Ma-Simoj, 25.X.1927, 1 ♂. Dist. Moxico, R. Longilico, 20-23.VI.1927, 3 ♂♂. Dist. Moxico, Busaco, 24.VI.1927, 1 ♀ (M. Burr) (*B. M.*).

S. AFRICA: Natal, Durban, 1 ♀ (J. H. Bouker) (*Geneva M.*).

This species was described from Angola (Ambriz). In addition, Burr (1902) recorded it from Port Natal and Transvaal.

YENDIA Ramme

1929. *Yendia* Ramme, Mitt. Zool. Mus. Berlin, 15, 2: 251.

Genotype: *Acrida thrymmatoptera* Karsch, 1893.

Body extremely elongated and thin, ratio of length to width 17.5.

Antenna about half as long again as head and pronotum together, gradually narrowed to the apex. Head strongly elongated, ratio of length to with 4.0; from above, weakly narrowed to the apex. Fastigium of vertex large.

Pronotum elongated, flat, the lateral carinae straight and parallel, single transversal sulcus behind the middle. Meso- and metasternal lobes well separated; meso- and metasternal interspace four times as long as broad; along the middle of sternum there is a weak longitudinal carina.

Elytron extremely long and narrow, ratio of length to width 28. All main veins and their branches straight; area mediastina and area scapularis relatively well widened; membrana transparent, with sparse reticulation. Wing rudimentary, reaching to the end of the second abdominal tergite, with tessellate pattern.

Hind femur long and thin, ratio of length to width 22.9, scarcely widened to the base. Hind knee with short, acute, equal length lateral upper lobes on both sides, middle lobe only scarcely developed. Arolium one fourth longer than claw; broad, with rounded apex.

Supra-anal plate of male elongate triangular. Cercus short and narrow. Subgenital plate strongly elongated and acute.

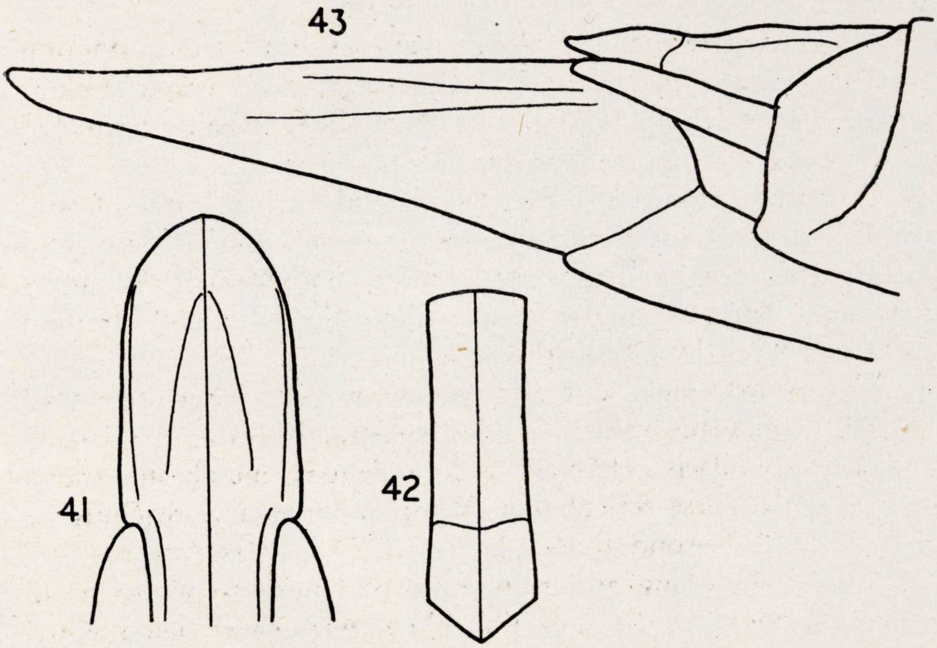
Yendia thrymmatoptera (Karsch).

(Figs. 41-43.)

1893. *Acrida thrymmatoptera* Karsch, Berl. Ent. Zeitschr., 38: 55, f. 1.
1929. *Yendia thrymmatoptera* Ramme, Mitt. Zool. Mus. Berl., 15, 2: 251

This species was known from a single female described by Karsch from Adeli, Bismarckburg, Togoland (XI-XII, 1890, 1 ♀, type!) and from a single male described by Ramme.

GOLD COAST: Yapi, 1916, 1 ♂ (J. J. Simpson) (*B. M.*).



Figs. 41-43.—*Yendia thrymmatoptera*. 41) Fastigium of vertex of male. 42) Pronotum of male. 43) Subgenital plate of male.

ACRIDARACHNEA I. Bol.

(Figs. 3, 5.)

1908. *Acridarachnea* I. Bolívar, Bol. Soc. Esp. Hist. Nat.: 419.

Genotype: *Acridarachnea ophthalmica* I. Bolívar, 1908.

Body strongly elongated and slender, ratio of length to width 10.3-9.3.

Antenna lanceolate, flattened and broadened. Head strongly elongated, ratio of length to width 3.5-3.0, narrow conical, compressed in the middle. Fastigium of vertex narrow.

Pronotum strongly elongated, almost flat, single transversal sulcus disposed far beyond the middle; lateral carinae in prozona parallel, in metazona excurved. Mesosternal lobes connected one with another; mesosternal interspace closed, inverse triangular form.

Elytron long and narrow, ratio of length to width 11.0, with obtuse apex; all main veins and their branches straight, in the apical part scarcely curved to the posterior margin. Area mediastina and area scapularis well widened. Wing almost as long as elytron, narrow, without speculum; the basal disc coloured, transverse veinlets form tessellate pattern.

Hind femur long and narrow, ratio of length to width 20.1-17.6. Hind knee with equal length, short lateral upper lobes in both sides; middle lobe very short. Arolium shorter than claw.

Supra-anal plate of male elongate triangular, with obtuse apex. Cercus short, weakly incurved and obtuse. Subgenital plate short, obtuse. Epiphallus with comparatively large ancorae, narrow bridge, broad, strongly projecting lateral plates, and bilobate lophi.

Supra-anal plate of female broadly triangular. Subgenital plate elongated. with truncate apex. Ovipositor short, robust, with broad, slightly curved valves.

Acridarachnea ophthalmica, I. Bol.

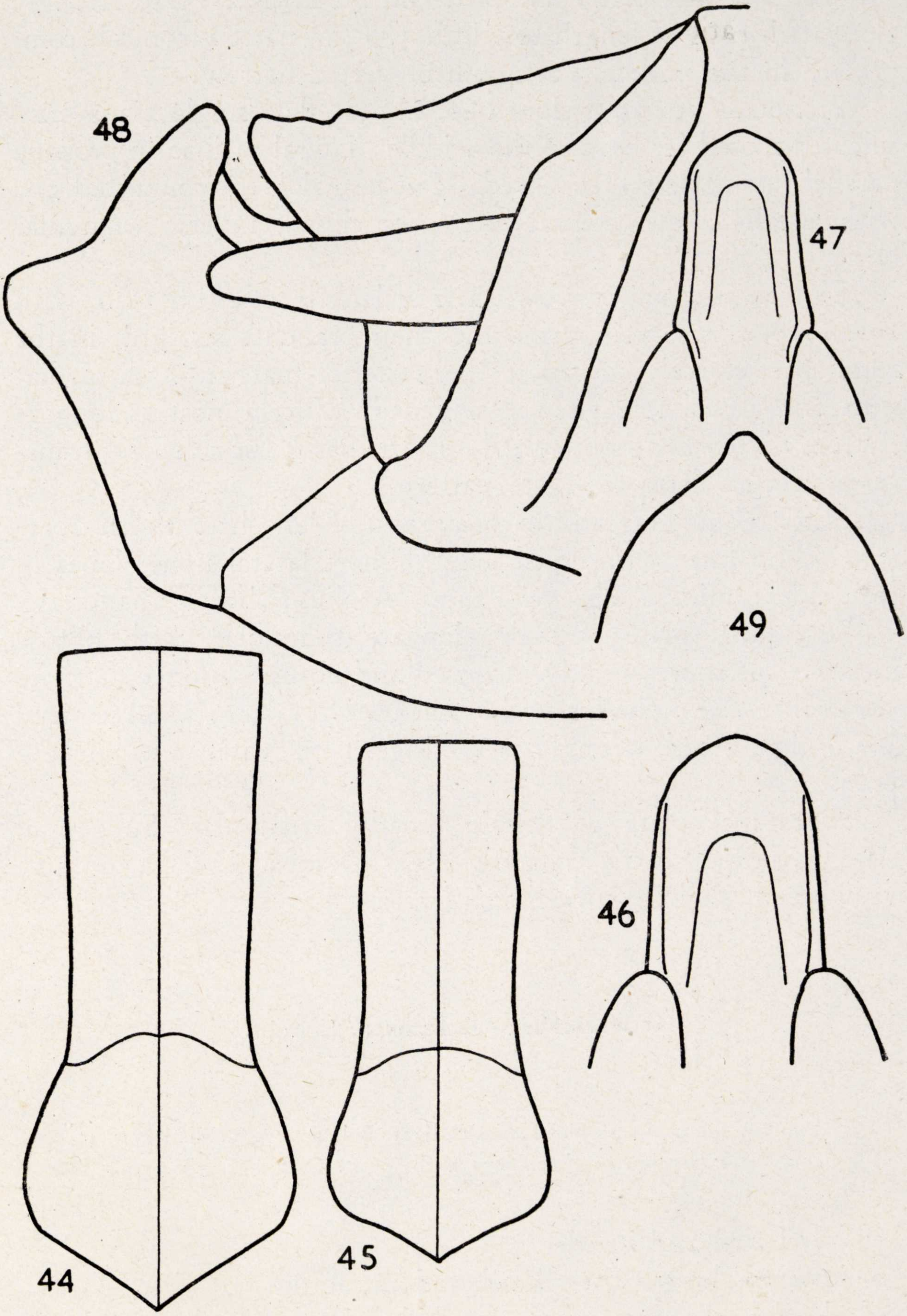
(Figs. 44-49, 205.)

1908. *Acridarachnea ophthalmica* Bolívar, Bol. Soc. Esp. Hist. Nat., 7: 420.
1910. *Acridarachnea ophthalmica* Kirby, Cat. Orth., 3: 580, no. 1.

♀. Large and slender.

Antenna longer than head and pronotum together, narrow and slender, the 3rd, 4th and 5th basal segments incompletely divided. Head very long, thin and slender. Fastigium of vertex long with parabolic apex.

Pronotum long and narrow; prozona half again as long as



Figs. 44-49.—*Acridarachnea ophthalmica.* 44) Pronotum of female. 45) Ditto of male. 46) Fastigium of vertex of female. 47) Ditto of male. 48) Subgenital plate of male in profile. 49) Ditto, apex from above.

metazona; lateral carina of pronotum, in prozona, scarcely sinuate, parallel; in metazona strongly excurved. Disc of prozona subcylindrical, in metazona almost flat and slightly raised; posterior margin of metazona broadly obtusangulate, with straight lateral sides.

Elytron projects far beyond the apex of the abdomen and slightly beyond the hind knee; ratio of length to width — 11; its anterior margin straight, apical part slightly narrowed, apex obtuse.

Hind femur produced beyond the apex of the abdomen. Hind knee with short upper and lower lobes. Arolium large, elongated, at least half as long as claw.

General colouration dirty yellowish, brown. Lateral carina or pronotum pale with a dark stripe along the side. Elytron with pattern (type 5). Metanotum, first and second abdominal segments dirty blue. Base of wing bluish to violet, the basal disc purplish, diffusing to violet, rest of wing colourless; tessellated pattern, brownish.

♂. Large and slender.

Antenna much longer than head and pronotum together, narrow and slender, 3rd, 4th and 5th basal antennal segments incompletely divided. Head long, thin and slender . Fastigium of vertex long with parabolic apex.

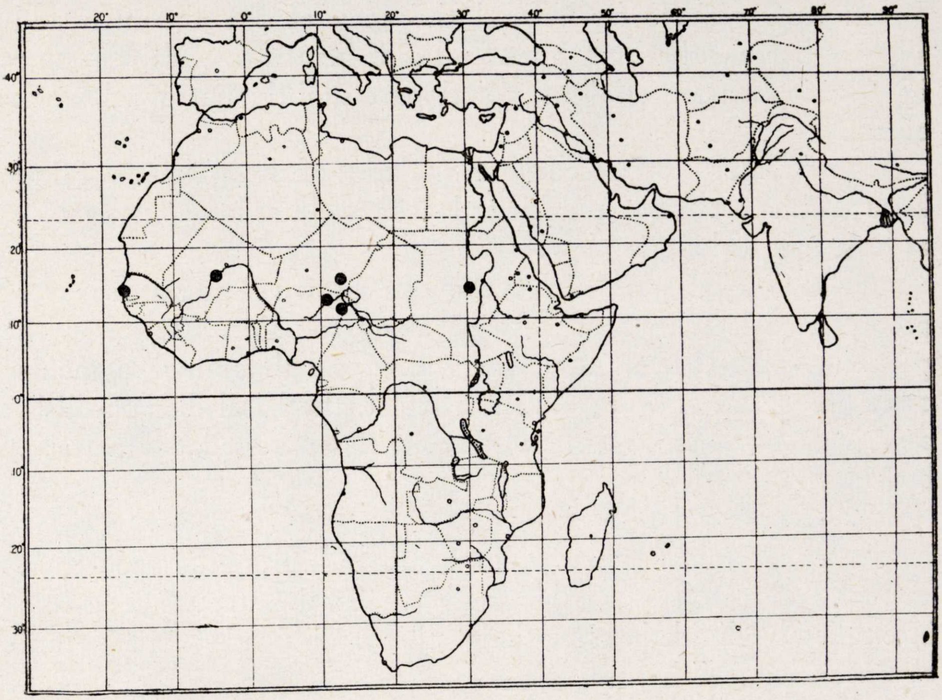
Pronotum long and narrow; prozona half as long again as metazona. Lateral carina of pronotum in prozona, scarcely sinuate, parallel; in metazona strongly excurved and divergent. Disc of prozona subcylindrical, in metazona almost flat and slightly raised; posterior margin of metazona broadly obtusangulate, with straight lateral sides.

Elytron projects far beyond the apex of the abdomen and slightly beyond the hind knee. Ratio of length to width — 11; its anterior margin weakly excurved; apical part slightly narrowed, apex obtuse.

Hind femur produced beyond the apex of the abdomen. Hind knee with short lateral upper and lower lobes. Arolium large, elongated, at least half as long as claw.

Subgenital plate short, in profile, with incurved external margin and projected, rounded apex; from above, apex has small rounded projection.

General colouration dirty yellowish-brown. Lateral carina of pronotum pale, with a dark stripe along its internal side; lateral lobe with dark longitudinal stripes. Elytron with distinct pattern (type 5). Metanotum and first and second abdominal tergites dirty blue; base of wing bluish; basal disc of wing purplish, diffusing gradually to violet; rest of wing colourless; main veins yellowish; tessellate pattern, brownish. Last tergites of the abdomen and supra-anal plate with indistinct dark spots.



Map. 3.—Distribution of *Acridarachnea ophthalmica*.

Length of body ♂ 53-72, ♀ 84-91; head ♂ 13.5-18.5, ♀ 18-23; pronotum ♂ 7.5-11, ♀ 11-14.5; elytron ♂ 41-55, ♀ 64-74; hind femur ♂ 31-39, ♀ 42-53.

ANGLO-EGYPTIAN SUDAN: Um Darag, 30.VI.1933, 1 ♂, 7 ♀♀; 22.V.1933, 1 ♀ (R. C. M. Darling) (*B. M.*).

NIGERIA: Kalkala, 3.V.1934, 1 ♂; 2. VI. 1934, 1 ♂; 29.VII.1934, 1 ♀; 7.VIII.1934, 1 ♀. Chad area, 31.V.1934, 1 ♀ (A. M. Gwynn). Kalkala, V-V.1933, 2 ♀♀ (F. D. Golding). Azare, 1925, 1 ♂ (L. Lloyd) (*B. M.*).

FRENCH SUDAN: Middle Niger, San, VI.1932, 1 ♂. Middle Niger, Korienze. VII.1932, 1 ♂, 1 ♀ (O. B. Lean) (*B. M.*). Kanem (near L. Chad), Bria, 2.VII.1935, 3 ♀♀. Kanem, Bol, 6.VIII.1935, 3 ♂♂ (Mission d'Études de la Biologie des Acridiens) (*P. M.*).

Type of this species was from Dakar.

Specimens from Anglo-Egyptian Sudan have lighter general colouration and lighter basal disc of wing than the Nigerian. Generally colouration of basal disc of wing varies from pinkish to purplish.

A. ophthalmica is distributed along a narrow strip across the continent from the Atlantic to the Nile, about 15°N. latitude. This area corresponds with zones: acacia-desert; grass savannah, acacia-tall grass savannah and desert shrub-desert grass.

OXYTRUXALIS gen. n.

Genotype: *Truxalis ensis* Burr, 1899.

Body strongly elongated and slender, ratio of length to width 11.0.

Antenna lanceolate. Head strongly elongated, ratio of length to width 3.7, narrow conical. Fastigium of vertex broad, slightly widened to the apex, which is rounded.

Pronotum strongly elongated, almost flat, single transversal sulcus disposed far beyond the middle; lateral carinae in prozona parallel, slightly sinuate, in metazona excurved. Mesosternal and metasternal lobes broadly separated; meso- and metasternal interspace twice as long as broad. Along the middle and lateral sides of meso- and metasternum there are weak carinulae.

Elytron long and strongly narrowed in the apical half, ratio of length to width 11.2, all main veins and their branches straight; membrane rather hard with dense irregular reticulation. Wing one-fifth shorter than elytron, narrow, without speculum; the basal disc coloured, transversal veinlets form the tessellate pattern.

Hind femur long and thin, ratio of length to width 19.0. Hind knee with short, acute external and elongated internal upper lateral lobes; middle lobe short. Arolium shorter than claw.

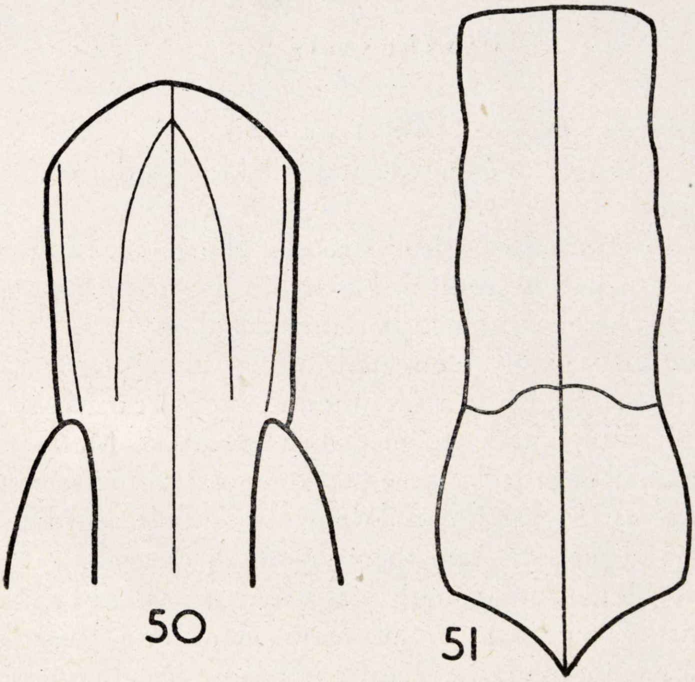
Supra-anal plate of female broadly triangular. Subgenital plate with obtuse-triangulate apex. Ovipositor short, robust, with broad slightly curved valves.

Oxytruxalis ensis (Burr).

(Figs. 50, 51.)

1899. *Truxalis ensis* Burr., Bull. Mus. Liverp., 2: 43.
1902. *Acrida ensis* Burr., Trans. Ent. Soc. Lond., 2: 161.
1903. *Truxalis ensis* Burr., Nat. Hist. Socotra, Liverp.: 416, pl. 25, f. 4. 4.ª

♀. (Type. Redescription.) Of medium size and very slender. Antenna longer than head and pronotum together. Head very long and slender. Fastigium of vertex with straight lateral margins and broadly obstusangulate slightly widened apex.



Figs. 50-51.—*Oxytruxalis ensis*. 50) Fastigium of vertex of female. 51) Pronotum of female.

Lateral carina of pronotum, in prozona, sinuate and parallel; in metazona weakly excurved; disc of pronotum in prozona subcylindrical, in metazona scarcely raised and flattened; ratio of prozona to metazona — 1.4. Mesosternal lobe rounded internally and incurved posteriorly; mesosternal interspace moderately broad, with incurved lateral sides and broadened apex. Metasternal interspace large, twice as long as broad.

Elytron long and narrow; from the middle all apical part narrowed strongly, with acute apex; anterior margin excurved; posterior one in the apical half incurved. Ratio of length to width (in the middle) — 11.2.

Hind femur long. Arolium rather longer than half claw.

General colouration yellowish-green. Elytron with longitudinal indistinct yellowish and greenish stripes. Basal disc of wing golden-orange tessellate pattern broad, brownish.

Length of body 63; frons 16; pronotum 8; elytron 57; hind femur 37.

SOCOTRA: Jena-agahan, 1,200 ft. 11.I.1899, 1 ♀ (*B. M.*). Gebel Raggit, 800 ft., 16.XII.1898, 1 ♀ (M. Burr) (*Liverp. Mus.*).

Truxalis Fabricius.

(Figs. 2, 4, 6, 7, 12, 14.)

1775. *Truxalis* Fabricius, Syst. Ent.: 279.
1835. *Tryxalis* Brullé, Hist. Nat. Ins., 9: 216.
1846. *Troxallis* Fischer v. Waldheim, Orth. Ross., 4: 228-229.
1873. *Acrida* Stål, Rec. Orth.: 104.
1893. *Acrida* (*Acridella*) Bolívar, Feuille Jeunes Nat., 23: 163.
1902. *Acrida* (Partim) Burr., Trans. Ent. Soc. Lond., 2: 149.
1910. *Acridella* Kirby, Cat. Orth., 3: 95.
1941. *Truxalis* Radclyffe-Roberts, Trans. Amer. Ent. Soc., 67: 21.

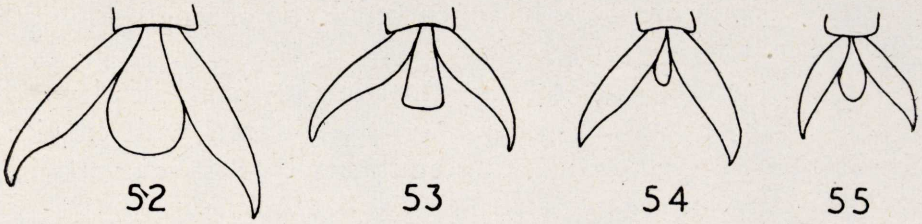
Genotype: *Gryllus* (*Acrida*) *nasuta* Linné, 1758.

Body strongly elongated, ratio of length to width 10.3-8.4.

Antenna lanceolate, more or less strongly widened. Head elongated, conical, ratio of length to width 3.5-2.6. Fastigium of vertex moderately broad or narrow, with rounded or truncate apex.

Pronotum more or less saddle-shaped, elongate; lateral carina in prozona different form, in metazona excurved. Meso- and metasternal lobes broadly separated; mesosternal interspace elongated; metasternal interspace elongated or slightly broader than long.

Elytron long and narrow, ratio of length to width 11.0-6.6, with obtuse to rounded apex; all main veins and their branches straight, in the apical part slightly curved to the posterior margin. Wing almost as long as elytron, moderately narrow, without speculum; basal disc coloured; transversal veinlets form the tessellate pattern.



Figs. 52-55.—Arolium. 52) *Truxalis grandis*. 53) *T. burtti*. 54) *T. nasuta*. 55) *T. johnstoni*.

Hind femur long and thin, ratio of length to width 20.0-16.8. Hind knee with equal length, short, acute, lateral upper lobes on both sides; middle lobe short.

Supra-anal plate of male elongate-triangular, with obtuse apex. Cercus short, weakly incurved and obtuse. Subgenital plate short. Epiphallus with moderate size ancorae and moderately broad lateral plates; lophi with two almost equal size lobes.

Supra-anal plate of female broadly triangulate. Subgenital plate elongated with truncate or slightly trilobate apex. Ovipositor short, robust, with broad, slightly curved valves.

KEY TO SPECIES

1 (2). Antenna extremely long, about one third longer than head and pronotum together, with strongly elongated segments (Fig. 19). Elytron with rounded apex. Basal disc and most of the wing in the ♀ bluish-black, in the ♂ bright red.. *longicornis* (Kr.)

2 (1). Antenna slightly longer or as long as head and pronotum together or slightly shorter with moderately elongated segments (Figs. 16, 17, 18). Elytron with subacute of obtuse apex. Basal disc of wing in the ♀ never black, in the male of different colouration.

3 (6). Lateral carinae of pronotum in the ♀ gradually divergent backwards and scarcely excurved in metazona (Figs. 56, 64). Elytron broad, ratio of length to width 6.6-8.4, with obtuse apex. Antennae strongly broadened and gradually narrowing to the apex (Fig. 16). Body robust. Head broad above.

4 (5). Pronotum comparatively shorter and broader (Fig. 56). Basal disc of wing in the ♀ from bluish to pinkish or bright lemon-yellow, in the ♂ light or bright lemon-yellow, or seldom, slightly pinkish......... *robusta* (Uv.)

5 (4). Pronotum comparatively longer and narrower (Fig. 64). Basal disc of wing in both sexes bright pink.................................... *mesopotamica* sp. n.

6 (3). Lateral carinae of pronotum of different form, but always strongly excurved in metazona. Elytron narrower, ratio of length to width 8.4-11.0 with more acute apex. Antennae of different form (Figs. 17, 18, 21). Comparatively slender body. Head slender, strongtly narrowed to the apex.

7 (16). Arolium large, at least half the length of claw, broadened to the apex (Figs. 52, 53). Subgenital plate of male, in profile, acute, from above, with finger-shaped apex. Basal disc of male wing red or yellowish.

8 (15). Arolium large, two thirds the length of claw, with broadened and rounded apex. Basal disc of wing in the ♂ of different shades of red.

9 (12). Lateral carinae of pronotum in prozona straight and parallel or convergent forwards, in metazona moderately excurved (Figs. 76, 88). Antennae strongly broadened and sharply narrowed in the apical fourth (Fig. 17).

10 (11). Mesosternal interspace with strongly incurved lateral margins and strongly broadened apex (Figs. 84, 85). Lateral carinae of pronotum in prozona mostly straight and parallel (Fig. 76). Basal disc of wing in the ♀ bluish to pinkish, sometimes indigo-bluish and sometimes dark pinkish-red, in the male red with orange shade.................................... *grandis* Klug.

11 (10). Mesosternal interspace with weakly incurved lateral margins and feebly broadened apex (Figs. 86, 87). Lateral carinae of pronotum of prozona mostly convergent forwards (Figs. 88). Basal disc of wing in the female intensely reddish-crimson and mat, in the ♀ intensely red.. *annulata* Thunb.

12 (9). Lateral carinae of pronotum in prozona slightly incurved, in metazona moderately excurved (Figs. 94, 100). Antennae moderately broadened and gradually narrowed to the apex.

13 (14). Pronotum rather saddle-shaped and broader; metazona longer than prozona (Figs. 94, 95). Body less slender. Basal disc of wing in the female intensely bright pink. in the ♂ pale red..................... *indica* (I. Bol.)

14 (13). Pronotum not saddle-shaped and narrower; the prozona as long as the metazona (Figs. 100, 101). Body more slender. Basal disc of wing in both sexes light reddish... *siamensis* sp. n.

15 (8). Arolium large, at least half the length of claw with broadened and truncate apex (Fig. 53). Basal disc of wing in the male light yellowish, in the ♀ dark purplish.. *burtti* sp. n.

16 (7). Arolium small and narrow, with narrowed apex (Figs. 54, 55). Apex

of ♂ subgenital plate, in profile, obtuse or subacute, from above, without finger-shaped projection. Basal disc of wing in the ♂ yellowish.

17 (26). Lateral carinae of pronotum in prozona strongly sinuated or incurved (in the latter case pronotum always strongly saddle-shaped), in metazona excurved.

18 (21). Pronotum not saddle-shaped, strongly elongated and narrow; the lateral carinae of prozona strongly sinuated. Elytron long and narrow, ratio of length to width in the ♀ 10-11, in the ♂ 8.6-10.0.

19 (20). Prozona of pronotum longer than metazona; posterior margin of metazona obtusangulate, with apex obtuse to pointed (Fig. 105). Basal disc of wing in the ♀ light pinkish; tessellated pattern in both sexes narrow. ♂ subgenital plate short and very obtuse (Figs. 109, 110). Length of body ♀ 67-94, ♂ 43-54.. *procera* Klug.

20 (19). Prozona of pronotum shorter than metazona; the posterior margin of metazona strongly acutangulate and pointed (Fig. 111). Basal disc of wing in the ♀ bright wine-red; tessellated pattern in both sexes broad. Male subgenital plate with subacute apex (Fig. 116). Length of body ♀ 48-62, ♂ 38-41.. *rubripennis* sp. n.

21 (18). Pronotum strongly or moderately saddle-shaped, moderately elongated; lateral carinae in prozona sinuated or incurved. Elytron relatively broad, ratio of length to width in the ♀ 8.6-10.0, in the ♂ 7.5-8.5.

22 (23). Pronotum strongly saddle-shaped, strongly constricted in prozona and comparatively robust; lateral carinae in prozona varies between incurved and strongly sinuate (Figs. 117, 123). Basal disc of wing in the ♀ light, or bright wine-red, or more or less intensely purplish, veins always pinkish.. *conspurcata* Klug.

23 (22). Pronotum moderately saddle-shaped, scarcely constricted in prozona and comparatively slender; lateral carinae in prozona sinuate (Figs. 125, 127). Basal disc of wing in the ♀ light pinkish or intensively cinnabar-red.

24 (25). Lateral carinae of pronotum in metazona strongly and proportionally roundly excurved; ratio of metazona to prozona 1.6 (Fig. 125). Apex of fastigium of vertex in the ♀ broadly obstusangulate (Fig. 126). Basal disc of wing in the ♀ light-pinkish........................ *viridifasciata* (Kr.)

25 (24). Lateral carinae of pronotum in metazona moderately excurved and divergent, but not rounded; ratio of metazona to prozona 1.2-1.4 (Fig. 127). Apex of fastigium of vertex in the ♀ parabolic (Fig. 129). Basal disc of wing in the ♀ intensely cinnabar-red..................... *bolivari* sp. n.

26 (17). Lateral carinae of pronotum in prozona straight or weakly incurved, in metazona excurved (Figs. 139-145).

27 (28). Arolium narrow about half the length of claw (Fig. 55). Fastigium of vertex with obtusangulate apex (Fig. 164).................. *johnstoni* sp. n.

28 (27) Arolium narrow and smallest, about one fourth the length of claw (Fig. 54). Fastigium of vertex with rounded apex.

29 (30). Lateral carinae of pronotum in prozona incurved in both sexes (Figs. 156, 157). Basal disc of wing in th ♀ purplish..................... *philbyi* sp. n.

30 (29). Lateral carinae of pronotum in prozona in ♀ straight or weakly incurved, in ♂ more or less incurved.

31 (32). Posterior margin of metazona of pronotum acutangulate (Figs. 139-145). Subgenital plate of ♂ more obtuse in profile (Fig. 148). Basal disc of wing in the ♀ dark pink or purplish............................ *nasuta* (L.)

32 (31). Posterior margin of metazona of pronotum obtusangulate (Fig. 150). Subgenital plate of ♂ less obtuse in profile (Fig. 154). Basal disc of wing in the ♀ purplish bluish.. *eximia* Eich.

Truxalis robusta robusta (Uv.).

(Figs. 56-63, 215.)

1916. *Acrida robusta* Uvarov, Rev. Russ. Ent., 14: 8.
1940. *Acridella robusta* Tarbinsky, Salt. Orth. Azerb.: 167.

♀. Large and robust.

Antenna shorter than head and pronotum together, strongly widened and gradually narrowed to the apex, sometimes more or less serrated on the external side. All basal segments distinctly separated or 3rd, 4th and sometimes 5th incompletely divided. Head robust and comparatively short. Fastigium of vertex large and broad, its lateral margins incurved, apex broadly rounded.

Lateral carinae of pronotum divergent backwards and weakly excurved in metazona; disc of pronoza weakly subcylindrical; metazona flat, its posterior margin acutangulate with incurved sides; ratio of prozona to metazona 1.1. Mesosternal interspace constricted in the middle and broadened at the apex; metasternal interspace as long as broad.

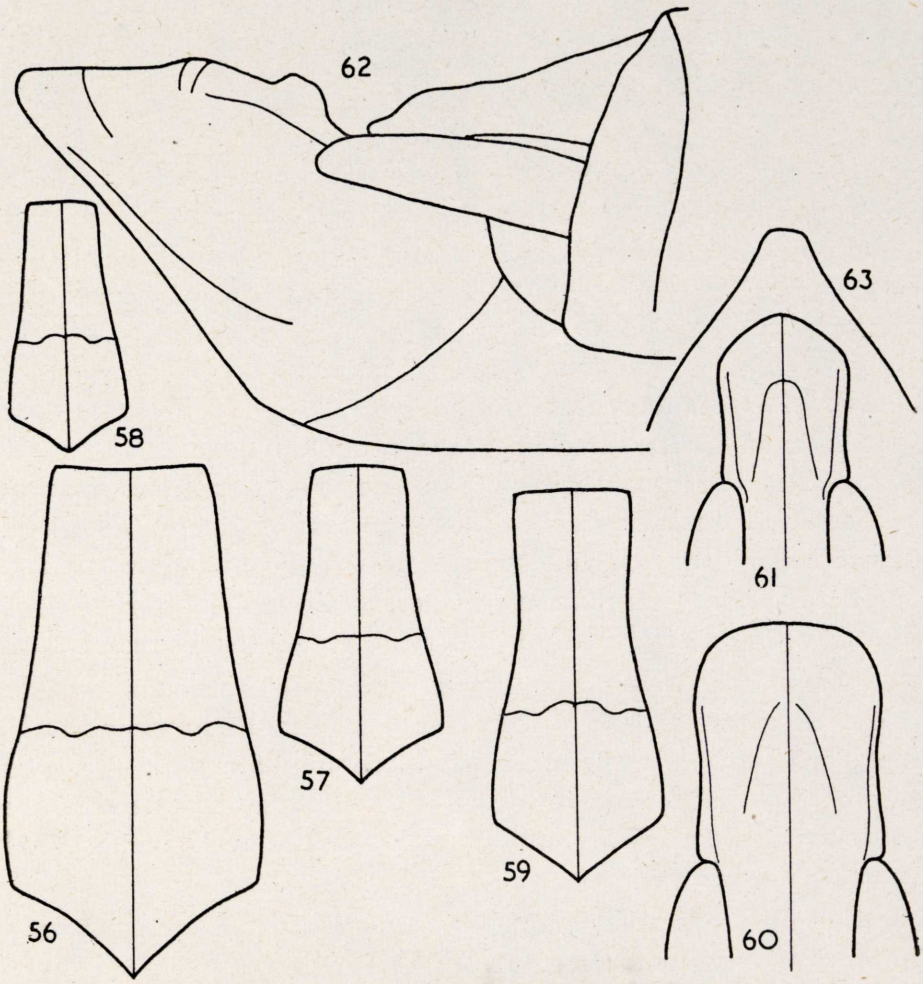
Elytron moderately long, projecting a little beyond the hind knee, relatively broad; ratio of length to width 7.8-8.0; its apex short and obtuse.

Hind femur slightly produced beyond the apex of the abdomen. Hind knee with moderately elongated lateral lobes, upper lobe broad and obtuse, lower one narrow and acute. Arolium small, one third the length of claw.

General colouration green or brownish; elytron uniformly coloured or with a longitudinal stripe (type 2 or 3); metanotum, first and second abdominal tergites dirty bluish; base of wing bluish; basal disc of wing bluish to pinkish, rest of the wing colourless or slightly greenish; tessellated pattern broad.

♂. Comparatively large and robust.

Antenna little shorter than head and pronotum together, moderately widened in the basal part; 3rd, 4th and sometimes 5th basal segments incompletely divided. Head comparatively thick and robust. Fastigium of vertex with slightly incurved lateral margins and obtusangulate apex.



Figs. 56-63.—*Truxalis robusta.* 56) Pronotum of female subsp. *robusta.* 57) Ditto of male. 58) Ditto of male from Mzhet (Caucasus). 59) Ditto of male subsp. *citrina.* 60) Fastigium of vertex of female subsp. *robusta.* 61) Ditto of male. 62) Subgenital plate of male in profile. 63) Ditto, apex from above.

Pronotum scarcely saddle-shaped; lateral carinae in prozona, scarcely incurved, in metazona scarcely excurved and divergent;

disc of prozona weakly subcylindrical, metazona flat, its posterior margin acutangulate with slightly incurved sides; ratio of prozona to metazona 1.1. Mesosternal interspace narrow, constricted in the middle and broadened at the apex; metasternal interspace twice as long as broad.

Elytron moderately long, little projecting beyond the hind knee, relatively broad; ratio of length to width — 6.6, its anterior margin excurved, apex briefly obtuse.

Hind femur produced well beyond the apex of abdomen. Hind knee with elongated and acute upper and lower lateral lobes, lower lobe shorter than upper one. Arolium very small, one third the length of claw.

Subgenital plate comparatively long, conical; its posterior margin, in profile, almost straight, apex slightly obtuse; from above, apex almost conical, obtuse.

General colouration green or brownish. Lateral carinae of pronotum yellowish, sometimes with a dark stripe along the internal side. Elytron with pattern of the type 2 or 3, or uniform. Basal disc of wing light lemon-yellowish, rarely light pinkish, apical part colourless or slightly greenish; tessellate pattern light brownish, broad. Abdomen uniformly yellowish.

Length of body ♂ 48-53, ♀ 70.0-88.5; frons ♂ 11-12, ♀ 14.5-18.5; pronotum ♂ 8-9, ♀ 11.5-14; elytron ♂ 40-42.5, ♀ 58-69; hind femur ♂ 28.5-31, ♀ 39.5-46.

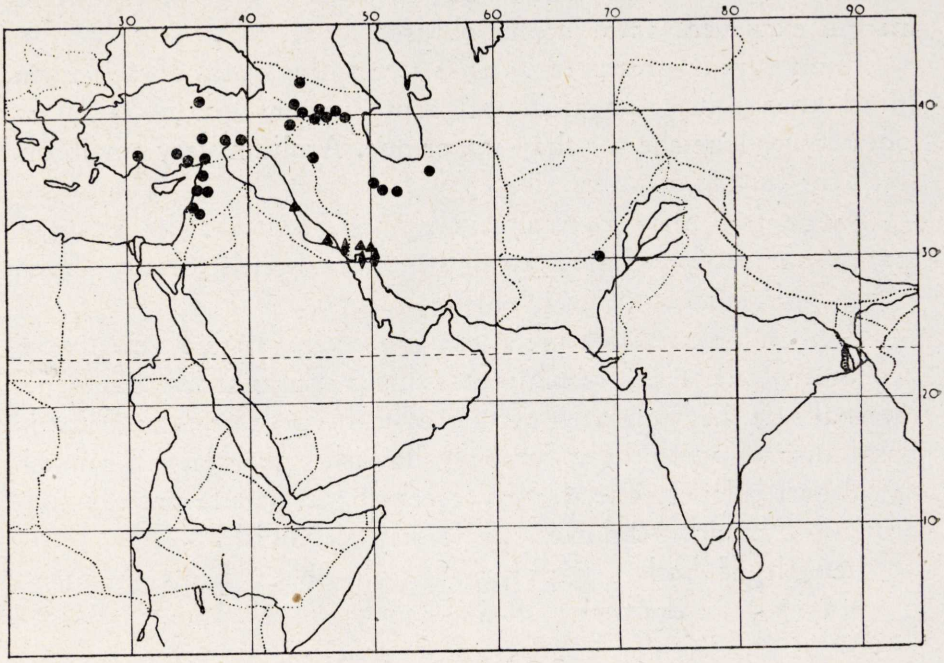
GEORGIA: Mzhet, near Tiflis, 2-5.VI.1912, 3 ♂♂, 1 ♀ (E. Koenig) (*O. M.*).

AZERBAIDZHAN: Geok-Tapa, 1915, 1 ♂ (M. Burr) (*B. M.*). Dshebrail, VI.1894, 1 ♀ (*M. M.*). Dash-Burun, Milskaja-Steppe, 26.V, 16.VI.1931, 1 ♂, 1 ♀ (*W. C.*). Prov. Elizavetpol: Vejsaly; Shach-Tshinar, Prov. Baku: Steppe Mugan; Alexandrovka (Uvarov, 1916). Mugan Steppe: Dzhafarchan, Nuruly. Kirovabad. Dist. Nukha, Tash-Bulak. Dist. Divitshinsk, Tazakend. Kara-Chala (Tarbinsky, 1940).

ARMENIA: Prov. Megry, Zangezur, 8.VIII.1925, 1 ♂, 1 ♀; 12.VI.1925, 1 ♂. Val. Araxis, Djulfa, 8.VII.1925, 1 ♂ (M. Riabov). Erivan, 2.VI.1925, 1 ♂. Araxis, Saral Bulag, 8.VI.1928, 1 ♀ (A. Shelkovnikov) (*B. M.*). Ordubad, 1 ♀. Val. Araxis, 1 ♀ (Reitter) (*W. M.*). Ordubad (Uvarov, 1916).

TURKEY: Adana, 1930, 1 ♂. Marash, 9.VII.1930, 2 ♀♀ (Sureya Bey). Adalia, 18.VI.1927, 1 ♂. Urfa, VII. 1931, 1 ♂, 2 ♀♀ (Eshref Bey). Cavuslu, 3 m., N. W. of Mersina, 8.VI.1939, 1 ♀ (B. J. Catton (*B. M.*). Van Lake, 1 ♂. Amasia, 1 ♂, 1 ♀ (*W. M.*). Marash, 1 ♂, 1 ♀. Bimbogh, 2 ♀♀. Bimbogha Dagh, 1 ♀. Malatia, 2 ♀♀ (Escalera) (*M. M.*).

SYRIA: Selemiye, 3.V.1946, 1 ♂. Aleppo, 28.V.1946, 1 ♂.



Map. 4.—Distribution of species: ● — *Truxalis robusta*. ◆ — *T. robusta citrina*. ▲ — *T. mesopotamica*.

Hama, 20.V.1946, 2 ♀♀ (E. S. Brown). Jebel Mazar Lake, 25.VII.1945, 2 ♀♀. Tekieh, 3,500 ft., 16.VI.1945, 1 ♀ (K. P. Whitehorn) (*B. M.*). Akbes, near Alexandretta, 2 ♂♂ (*M. M.*). Djeble, 20.V.1935, 1 ♀. Nahr-el-Hussein, 20.V.1935 (Werner). Latakia, 1829, 1 ♀ (Leuthner) (*W. M.*). Latakia, 1885, 1 ♀ (*Geneva M.*).

KURDISTAN: Subairrania, 2,900 ft., 24.VI.1928, 1 ♀ (H. Scott) (*B. M.*). Chane: Museek (Uvarov, 1916).

PERSIA: Shahabad (Teheran), 4.VIII.1948, 1 ♀. Mahmudieh near Teheran, 30.VII.1948, 1 ♀. 13.XII.1948, 1 ♂, 1 ♀ (P. Aellen) (*Bas. M.*). Nishovar, 15.VII.1927, 1 ♂. Tadzhirish, near Teheran, 7-15.VII. 1927, 1 ♂, 2 ♀♀. Kiredzh, 40 km. W. of

Teheran, 26.VI.1927, 1 ♂ (M. M. Siazov). Shiraz, 11-29.VI. 1919, 4 ♀♀ (J. E. B. Hotson). Prov. Teheran, Khar, VI-VII.1949, 2 ♀♀ (Mirzayan) (*B. M.*). Shakh-Kuh, 1 ♂ (*W. M.*).

BALUCHISTAN: Kacha, 30.30 N. 67.30 E., 16.V.1913, 1 ♀ (G. G. Golly) (*I. M.*).

This species was described on a large series of specimens from Transcaucasia, without fixation of the type. Elizavetpol district (now Kirovabad) has been selected as the typical locality for this species by agreement with Dr. B. P. Uvarov (author of species).

Specimens from the most northern locality, Mzhet, near Tiflis, are sharply differentiated from the specimens of other localities by their small size: length of body of ♂ 40, ♀ 68; frons ♂ 9, ♀ 14; pronotum ♂ 6, ♀ 11; elytron ♂ 30 ♀ 51; hind femur ♂ 23, ♀ 39. This may be another subspecies.

Specimens from Transcaucasia, West Persia, Turkey and Syria have less robust body; the basal disc of wing in the females bluish to violet, in the males lemon-yellow. Specimens from Eastern Persia have more robust body and colouration of basal disc of wing in the females again with the violet-pinkish shade, in the males specimens occur with lemon-yellow and also with pinkish basal disc.

Truxalis robusta citrina subsp. n.

♀ (Type). Differs from the typical subspecies by bright lemon-yellow colouration of basal disc of wing.

♂ (Paratype). As the female with the same bright lemon-yellow basal disc of wing. From the typical subspecies differs also by the larger size of body i. e. lesser sexual dimorphism.

Length of body ♂ 56-63, ♀ 80-82; frons ♂ 13.5-15.5, ♀ 17-18; pronotum ♂ 9.5-10.5, ♀ 12-13; elytron ♂ 46-51, ♀ 62-64; hind femur ♂ 35-40, ♀ 44-46.

PERSIA: Luristan, Pousht-E-Kouh, Chekerawa, 640 m., 1907, 1 ♀ (J. De Morgan) (*P. M.*). Kouh Safid, Haud Karoum, VII.1899, 1 ♂, 6 ♀♀ (including type). Gotwend, Susa, 2 ♀♀. Chindaar, 2 ♂♂ (*M. M.*). Masjid-i-Sulaiman, near Ahwaz, IV-V.1935, 3 ♂♂ (S. V. P. Pill) (*B. M.*).

Truxalis mesopotamica sp. n.

(Figs. 64-69, 216.)

♀ (Type). Large and robust.

Antenna shorter than head and pronotum together, strongly widened and gradually narrowed to the apex, on the external side of the basal part sometimes serrated; 3rd, 4th, 5th, 6th and sometimes 7th basal segments incompletely divided. Fastigium of vertex very large, its lateral margins straight and parallel, apex truncate with rounded angles.

Lateral carinae of pronotum straight and divergent backwards, in metazona weakly excurved; disc of prozona feebly subcylindrical, metazona flat, its posterior margin acutangulate with incurved sides; ratio of metazona to prozona 1.0-1.1. Mesosternal interspace twice as long as broad, constricted in the middle and broadened at the apex. Metasternal interspace as long as broad.

Elytron moderately produced beyond the hind knee, ratio of length to width 8.0-8.4; apex broad, obtuse.

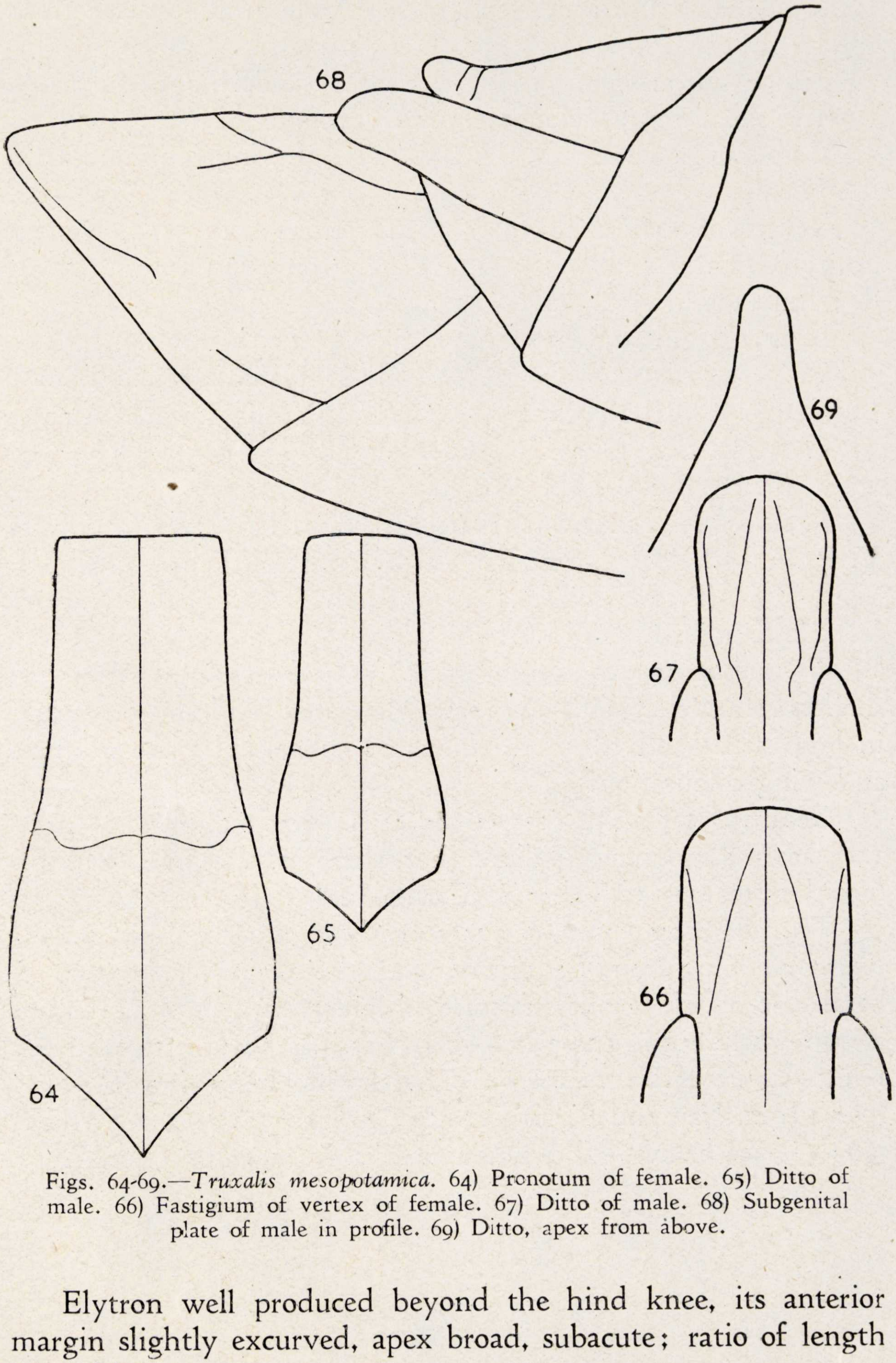
Hind femur reaches the apex of the abdomen, or slightly past it. Lateral lobes of the hind knee moderately elongated and acute. Arolium small, almost one fourth the length of claw.

General colouration green or dirty yellow. Lateral carinae of pronotum light yellow, with a dark stripe along the internal side, or without it; elytron uniformly coloured, or with pattern of type 3; metanotum, first, second and sometimes third abdominal tergites dirty bluish, base of wing sometimes slightly bluish; the basal disc of wing bright pink slightly mat, the rest of the wing weakly greenish or colourless, the tessellate pattern light.

♂ (Paratype). Large and robust.

Antenna slightly longer than head and pronotum together. well widened, 3rd, 4th and sometimes 5th basal segments incompletely divided. Fastigium of vertex large, its lateral margins almost straight, parallel, apex broadly rounded, almost truncate.

Lateral carinae of pronotum divergent backwards, in metazona weakly excurved; disc of prozona feebly subcylindrical; metazona flat, its posterior margin acutangulate with incurved sides, ratio of prozona to metazona 1.1-1.2. Mesosternal interspace narrow, constricted in the middle and broadened at the apex. Metasternal interspace twice as long as broad.



Figs. 64-69.—*Truxalis mesopotamica*. 64) Pronotum of female. 65) Ditto of male. 66) Fastigium of vertex of female. 67) Ditto of male. 68) Subgenital plate of male in profile. 69) Ditto, apex from above.

Elytron well produced beyond the hind knee, its anterior margin slightly excurved, apex broad, subacute; ratio of length to width 7.0-7.7.

Hind femur little produced beyond the apex of the abdomen. Hind knee with moderately elongated and obtuse upper lateral lobes and short and acute lower ones. Arolium almost one third the length of claw.

Subgenital plate, in profile, elongated, conical, apex subacute, from above, strongly elongated and obtuse.

Colouration, including the basal disc of wing the same as in the female.

Length of body ♂ 48-59, ♀ 76-94; frons ♂ 11.5-14, ♀ 11.5-20.5; pronotum ♂ 8-9.5, ♀ 12-16; elytron ♂ 42.5-49.5, ♀ 64-84; hind femur ♂ 29-34, ♀ 41-53.

IRAQ: Baghdad, 12.VI.1946, 2 ♂♂ (E. S. Brown); 5.XI. 1923, 1 ♀; 1923, 2 ♀♀ (R. W. G. Hingston). Hinaidi, near Baghdad, V-VIII.1935, 2 ♂♂, 2 ♀♀ (Yusuf Lazar). Amara, 30.VI.1917, 1 ♀ (Type !) (C. F. C. Beeson); 5-14.VI.1918, 2 ♂♂ (P. A. Buxton) (*B. M.*).

PERSIA: N. of Ahwaz, Naje Kal, 8.VIII.1932, 1 ♀ (Dr. S. V. P. Pill) (*B. M.*). Garme-Sar, 90 km. east of Teheran, 5.VIII. 1948, 1 ♂ (P. Aellen) (*Bas. M.*). Kouh Sefid, Haut Karoum, VII.1899, 1 ♀ (Escalera) (*M. M.*).

Tr. mesopotamica is nearest to *Tr. robusta*, but differs by the less robust shape of body, more elongated head and pronotum in both sexes and by more elongated subgenital plate of male and wing colouration.

Geographically this species occurs in Mesopotamian lowlands and nearest mountain valleys, but there is also one doubtful record from east of Teheran (Garme-Sar).

Truxalis mesopotamica was recently confused with *Truxalis pharaonis* Klug from Egypt owing to the similar colouration of basal disc of wing. But structure of lateral carinae of pronotum is quite different in these two species as it is possible to see from Klug's figure of *Tr. pharaonis*. Therefore all records of *Tr. pharaonis* from Iraq and Persia refer to *Tr. mesopotamica*. (*Tr. pharaonis* —see below— is a synonym of *Tr. annulata* Thunb.).

Truxalis longicornis (Krauss).

(Figs. 70-75, 209.)

1902. *Acrida* (*Acridella*) *longicornis* Krauss, Sitz. Akad. Wiss. Wien., 7: 2.
1907. *Acrida longicornis* Krauss, Denksch. Mat.-Nat. Kl. Akad. Wiss. Wien., 71: 5, pl. I, fig. 3.

♀. Of medium size and comparatively robust.

Antenna extremely long, much longer than head and pronotum together. gradually narrowing to the apex, with strongly elongated segments. 3rd, 4th and 5th basal segments incompletely divided. Fastigium of vertex with incurved lateral margins and parabolic apex.

Pronotum comparatively long, the lateral carinae, in prozona, straight, and parallel, in metazona excurved and divergent. Prozona tectiform; metazona flat, its posterior margin strongly acutangulate, with incurved sides and pointed apex. Ratio of metazona to prozona — 1.2. Mesosternal interspace broad, less than half again as long as broad, with almost straight, scarcely incurved sides. Metasternal interspace as long as broad.

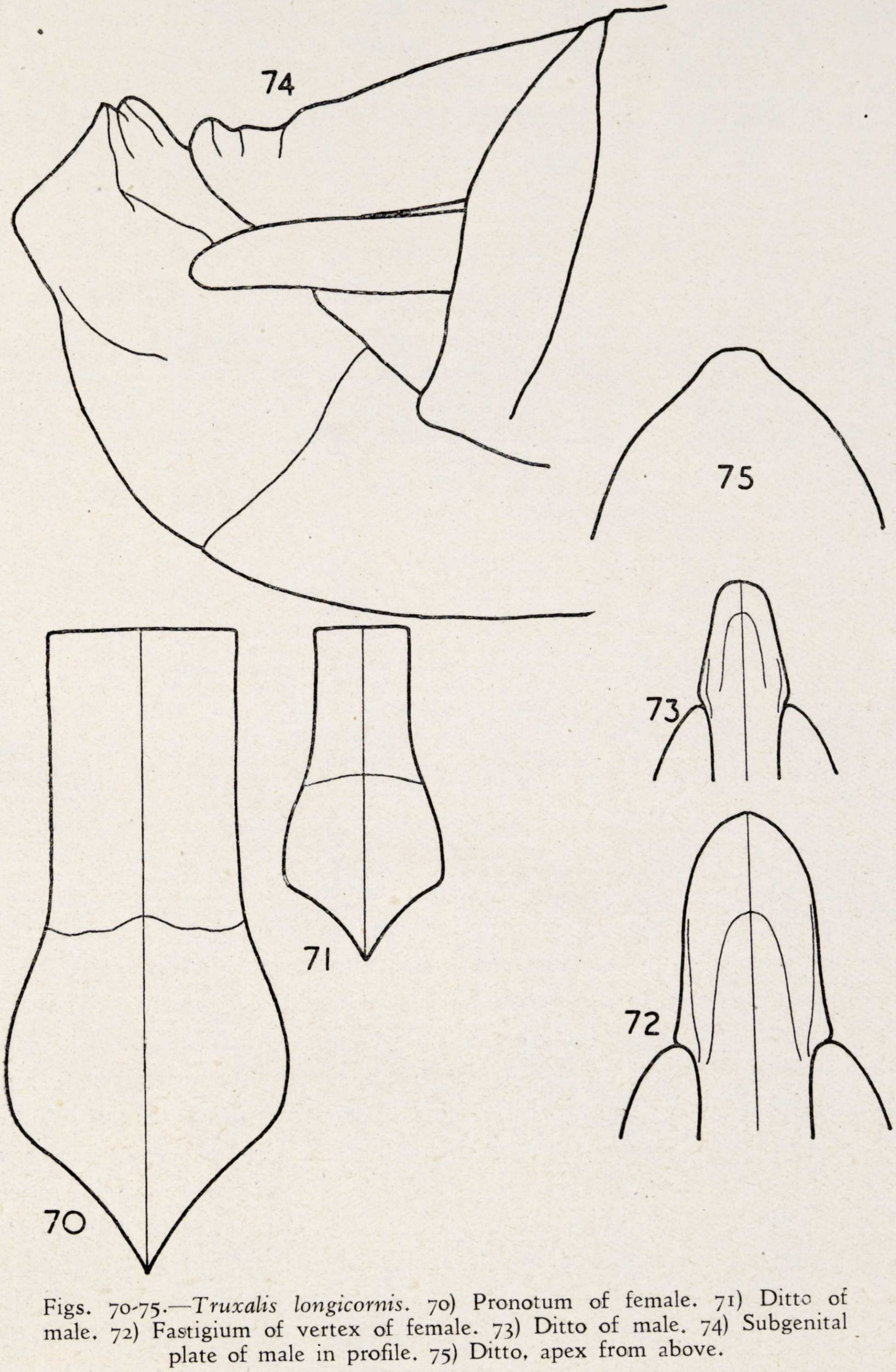
Elytron little produced beyond the hind knee and comparatively broad: ratio of length to widthe — 7: its anterior margin weakly excurved; apex rounded.

Hind femur long, little produced beyond the apex of the abdomen. Hind knee with moderately long and acute lateral lobes. Arolium broad, less than half the length of claw.

General colouration brownish, greyish, or greenish. Metanotum, first and second abdominal tergites bluish-black. Elytron with characteristic pattern (type 6). Base and sometimes internal margin of wing indigo-blue, basal disc of wing bluish-black, venation and reticulation forming a tessellate pattern, broadly black, sometimes black colour of reticulation united and most of the wing becomes black, the apical lobe infumate or colourless.

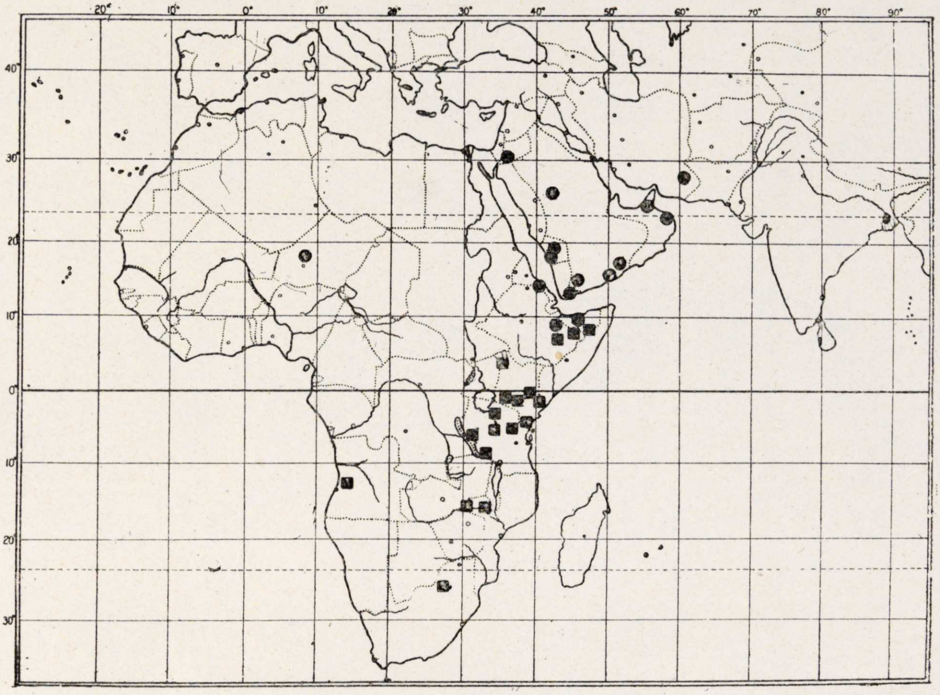
♂. Of middle size, moderately robust.

Antenna longer than head and pronotum together, little widened, 3rd and 4th basal segments incompletely divided. Fastigium of vertex narrowed to the apex, its sides almost straight.



Figs. 70-75.—*Truxalis longicornis*. 70) Pronotum of female. 71) Ditto of male. 72) Fastigium of vertex of female. 73) Ditto of male. 74) Subgenital plate of male in profile. 75) Ditto, apex from above.

Lateral carinae of pronotum, in prozona, incurved; in metazona excurved and divergent. Prozona subcylindrical; metazona slightly raised and almost flat, its posterior margin strongly acutangulate with incurved sides. Ratio of metazona to prozona — 1.3. Mesosternal interspace broad, less than half again as long as broad, with almost straight scarcely incurved sides. Metasternal interspace as long as broad.



Map. 5.—Distribution: ● — *Truxalis longicornis*. ■ — *T. burtti*.

Elytron long, well projecting beyond the hind knee, and comparatively broad; ratio of length to width — 7.2, its anterior margin excurved; apex rounded.

Hind femur long, well produced beyond the apex of the abdomen. Hind knee with moderately long and acute lateral lobes, upper lobe relatively longer than lower one. Arolium half the length of claw.

Subgenital plate short, in profile, with convex posterior margin and obtuse subconical apex; from above, apex subconical and obtuse.

General colouration brownish. Apical portion of antenna pale; all carinae of pronotum light yellow. Elytron with pattern of the type 5. Basal disc of wing bright red, remaining portion of wing colourless; in the basal disc main veins and veinlets red as the membrane in remaining part of wing venation with dark tessellate pattern. Hind femur above with dark and alternating light spots. Hind tibia with a light indistinct ring in the basal part.

Length of body ♂ 36-41, ♀ 66-73; frons ♂ 9.5-11.5, ♀ 16-19; pronotum ♂ 6-7.5, ♀ 12-13.5; elytron ♂ 30.5-35.5, ♀ 54-55; hind femur ♂ 22-26, ♀ 37-43.

ARABIA: Ktubu, 1902, 2 ♀♀ (G. W. Bury). Asir, Wadi Dafar, 4,500 ft., 27-30.XII.1947, 1 ♀ (G. V. Popov). W. Aden Protect., Dhala, 5,000-5,500 ft., 12-14.IX.1937, 4 ♀♀ H. Scott & E. B. Britton). Hayak, 90 m. N. of Aden, VIII-X.1932, 6 ♀♀ (Mrs. M. C. Rant). Muscat, 1884, 1 ♀. Hail, 14-16.V.1944, 1 ♀, 1 ♂ (D. V. Fitzgerald). Shehen, 17°10′ N. 52°15′ E., 27.I.1946, 1 ♀ (W. Thesiger). Aden, 1895, 1 ♀. Dhala, 4,600 ft., 20.VI. 1949, 1 ♀, 1 ♂ (K. M. Guichard). Wadi Harjab, V.1936, 1 ♂. Mahdatha, V.1936, 1 ♂ (H. St. J. B. Philby). Yemen, 1 m. W. of Ta'izz on road to Mocha, ca. 4,500 ft., 20.XII.1937, 1 ♂ (H. Scott & E. B. Britton). Mukalla, Seigum W. Road. The jol. C., 5,000 ft., 3.IX.49, 1 ♀. Oman, Huwaitat, Wadi Ghaur, 5.II.1950, 1 ♂ (K. M. Guichard) (*B. M.*).

TRANSJORDAN: Petra, 28.III.1923, 1 ♂ (H. St. J. Philby) (*B. M.*).

BRITISH SOMALILAND: Somaliland, 1906, 1 ♀ (G. W. Bury). Tug Ago Marodeh, Karin Kolan, 25 m. S. W. of Berbera, 7.V.1944, 1 ♂, 1 ♀ (K. M. Guichard) (*B. M.*).

ERITREA: «Eritrea», 1 ♀ (Twarson) (*St. M.*).

ABYSSINIA: Dere Dawa, VII. 1942, 2 ♀♀ (*C. M.*).

NIGER COLONY: Air, Irabettaben, VIII. 1947, 1 ♂ (L. Chopard (*P. M.*).

Tr. longicornis Kr. was described on a single female from South Arabia. Male is sharply differentiated from the female by wing colouration. Type was examined.

This rare species occurs exclusively in the deserts. The most interesting occurrence is in Air in Central Sahara quite remote from the other localities (Map 5).

Truxalis grandis grandis Klug.

(Figs. 76-85, 224.)

1830. *Truxalis grandis*, ♀, Klug, Symb. Phys.: no. 2, pl. XV, fig. 1.
1830. *Truxalis miniata*, ♂, Klug, Symb. Phys.: no. 7, pl. XVIII, fig. 1.
1910. *Acridella grandis* Kirby, Cat. Orth., 3: 95, no. 2.

♀. Very large, but slender.

Antenna shorter than head and pronotum together, its basal part to 10th segment strongly widened, the apical part sharply narrowed; 3rd, and 4th basal segments, sometimes the 5th and 6th, incompletely divided. Fastigium of vertex long and broad, with straight sides and broadly obstusangulate, sometimes almost truncate, apex.

Lateral carinae of pronotum in prozona straight, parallel, in metazona excurved; disc of prozona subcylindrical, in metazona almost flat and slightly raised; posterior margin of metazona straight — or obtusangulate with acute apex and incurved sides; ratio of prozona to metazona 1-1.2. Mesosternal interspace long, with strongly incurved lateral margins and strongly broadened apex. Metasternal interspace about half as long again as broad.

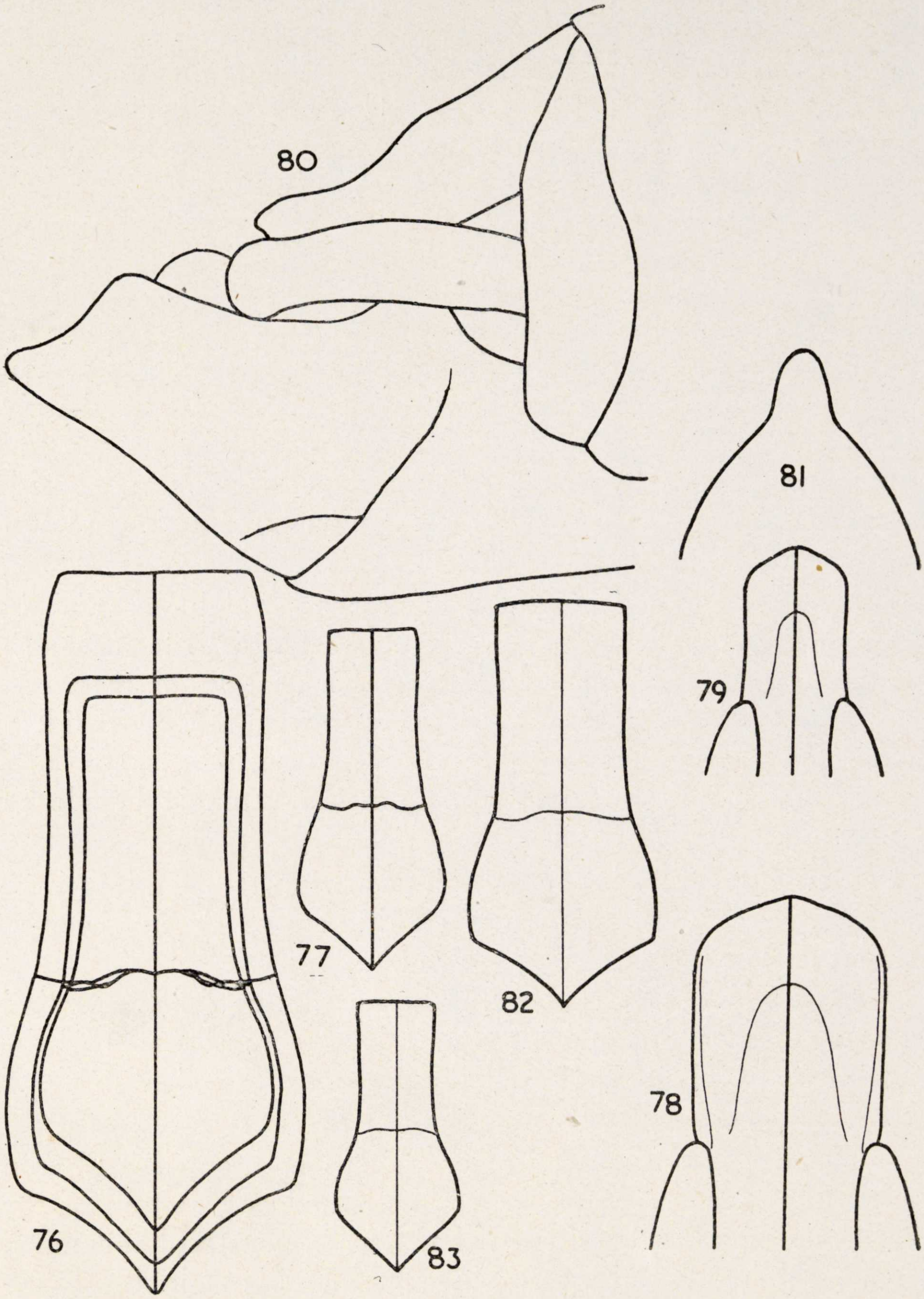
Elytron projects beyond the hind knee; ratio of length to width 9-9.6; its anterior margin weakly excurved, apex narrowed and acute.

Hind femur produced beyond the apex of the abdomen. Hind knee with short lateral lobes, upper lobe more obtuse than the lower one. Arolium large and broad, two thirds the length of claw, with rounded apex.

General colouration green, ochraceous or brownish. Elytron uniformly green or with more or less developed pattern of the type 4; metanotum, first, second and sometimes third abdominal tergites bluish; basal disc of wing bluish to light pinkish, sometimes indigo-bluish or dark crimsonpink; apical part colourless, or slightly greenish; the tessellate pattern light brownish.

♂. Large and slender.

Antenna shorter than head and pronotum together, moderately broadened; 3rd, 4th and sometimes 5th basal segment



Figs. 76-83.—*Truxalis grandis grandis*. 76) Pronotum of female and its variations. 77) Ditto of male. 78) Fastigium of vertex of female. 79) Ditto of male. 80) Subgenital plate of male in profile. 81) Ditto apex from above. 82) *T. gr. fitzgeraldi* pronotum of female. 83) Ditto of male.

incompletely divided. Fastigium of vertex large, with slightly incurved sides and broadly obtusangulate apex.

Lateral carina of pronotum in prozona almost straight, scarcely incurved, parallel; in metazona excurved and divergent; disc of pronoza slightly tectiform, in metazona flat, and slightly raised; posterior margin of metazona acutangulate, with incurved sides; ratio of prozona to metazona 1-1.1. Mesosternal interspace two — three times longer than broad strongly narrowed in the middle, with broadened apex. Metasternal interspace twice as long as broad.

Elytron projects beyond the hind knee; its anterior margin excurved, apex narrowed and subacute; ratio of length to width 8.3-8.6.

Hind femur produced beyond the apex of the abdomen. Hind knee with short lateral lobes; upper lobe obtuse, lower lobe acute. Arolium large and broad, two thirds the length of claw, with rounded apex.

Subgenital plate elongated, with narrowed apex, from above, with more or less developed finger-shaped projection.

General colouration green, dirty yellow. Elytron with more or less developed pattern of the type 2, 3 or uniformly green. Basal disc of wing bright or light red with slightly orange shade; apical part colourless; tessellated pattern light brownish.

Length of body ♂ 40-55, ♀ 71-101; frons ♂ 10-13, ♀ 16-20; pronotum ♂ 6-8, ♀ 11.5-15.5; elytron ♂ 31-43, ♀ 56-81; hind femur ♂ 24-31, ♀ 38-54.

T. gr. grandis is strongly variable in its characters. Size of body is largest in the Anglo-Egyptian Sudan and lake Chad area, in Egypt the body size becomes smaller and is smallest in Palestine and Arabia. Disc of the pronotum and form of fastigium of vertex are also very variable (see figs. 76, 77). Colouration of basal disc of wing varies from bluish to pinkish with all intermediate shades; this variation occurs over almost the whole area of the subspecies, but in addition in the coastal zone of Palestine there also occurs an indigo-bluish colouration of basal disc of wing, whilst in the Chad area there occurs a dark crimson-pink colouration.

T. grandis was described from «Egypto superiore inter Benisuef et Siut» on a female specimen; the male, which differs strongly by wing colouration, was described by Klug two pages later under the name *T. miniata.*

Nigeria: Kalkala, 20.VII.1934, 3 ♂♂, 2 ♀♀; 12.IX.1933, 1 ♂; VI-VIII-IX-X.1934, 2 ♂♂, 4 ♀♀ (A. M. Gwynn). Kalkala, 13-22.VI.1933, 1 ♂, 2 ♀♀; 27.IX.1931, 1 ♀ (F. D. Golding). N. Azaze, 10,40 N. 10,07 E., 1924, 1 ♂, 1 ♀ (J. W. B. Nanning) (*B. M.*).

Chad Territory: Kanem, Bria, 2.VII.1935, 1 ♀ (*P. M.*).

Anglo-Egyptian Sudan: Khartoum, 16.I.1904, 2 ♂♂. 30 m. W. of Gedaref, 23.VIII.1948, 1 ♀ (R. J. V. Joyce). Chadambaliya, Gedaref Dist., 14.X.1949, 2 ♂♂ (Richards). Dist. Gedaref, 5 ♂♂, 1 ♀ (*B. M.*). Wad Medani Dist., VI.1926, 2 ♀♀. Khartoum, 25-28.IX.1924, 2 ♂♂, 1 ♀; 30.VIII.1926, 1 ♀. Kassala, 3.X.1926, 1 ♂, 2 ♀♀. Shambat, 28.X.1926, 1 ♀. Berber, VIII.1925, 1 ♂. Khor Arbaat, IV-V.1926, 1 ♀ (H. B. Johnston). Khartoum, 23.I.1921, 1 ♀ (R. C. Cottam). Shendi, 18.X.1928, 1 ♀ (R. C. Darling). Khartoum, 25.VII.1924, 1 ♀ (H. H. King). Khartoum, 10.X.1920, 1 ♂, 1 ♀ (A. H. Hassan). Bouga, 2.I.1925, 2 ♀♀ (W. E. Giffard). Um Shedeirat, VII-VIII.1947, 1 ♀ (R. J. V. Joyce).

Kenya: Olagarsaile (S. W. of Nairobi), VII.1947, 1 ♀ (J. G. Williams) (*C. M.*).

Ethiopia: Sardo (Danakil), 12,45 N., 41,00 E., 28.VII.1946, 1 ♂ (K. M. Guichard). Danakil, Mille River, 7.IX.1949, 1 ♂ (A. Bellehu) (*B. M.*).

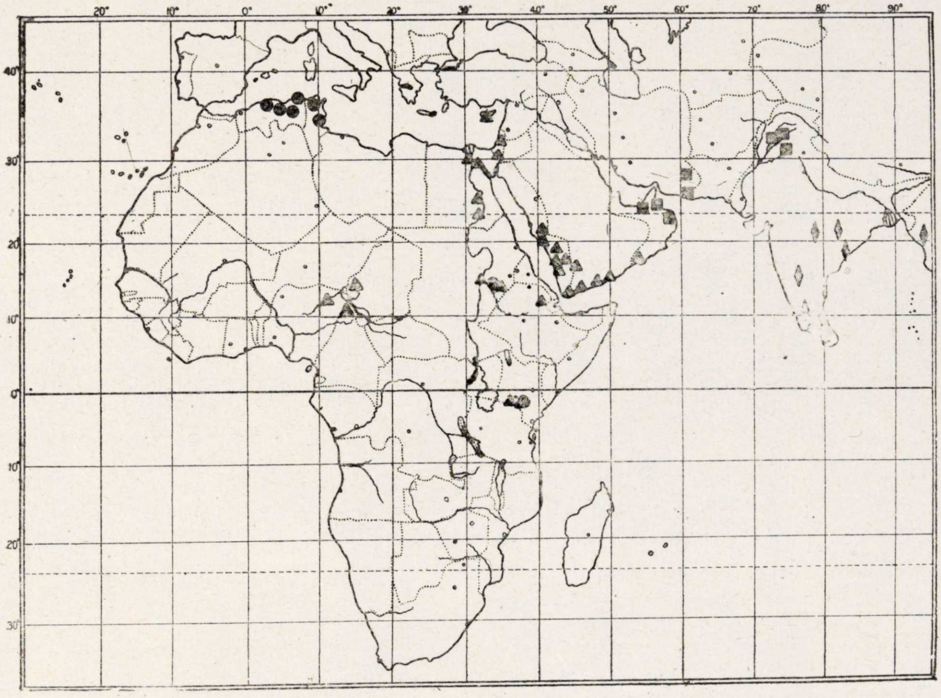
Egypt: Helwan, 29.IX-14.X.1930, 4 ♂♂, 1 ♀ (W. Roszkowski). Aswan, 10-21.I.1921, 4 ♂♂; 29.X.1921, 1 ♀ (Capt. K. J. Hayward). Fayoum, L. Karun, 23.IX.1945, 1 ♀ (R. L. Coe). Thebes, 1899, 1 ♀. Margaout, 1 ♂ (W. Innes) (*B. M.*). Belbeis, 30,24 N., 31,33 E., III.1901, 2 ♂♂, 1 ♀ (E. Fleutiaux). Ismailia, 1898, 1 ♀ (*P. M.*). Cairo, 1 ♀ (*W. M.*).

Cyprus: Platres, 23.I.1921, 1 ♂ (Caupt. K. J. Hayward) (*B. M.*).

Syria: Beirut, 1 ♂ (Lederer) (*G. M.*).

Palestine: Nazareth, 14.XI.1935, 4 ♂♂, 1 ♀. Galilee, Jabgha, 15-17.XI.1935, 6 ♂♂, 5 ♀♀. Acre, Napoleon's Hill, 29.XII.1919, 1 ♀. Jordan, nr. Samakh, 10.XII.1919, 1 ♂ (P. J. Barraud), Jericho, 8.VII.1923, 1 ♂. Beiran, Jordan Valley, 20.X.1922, 1 ♂ (P. A. Buxton). Haifa, Mt. Carmel, 9.IV.1945, 1 ♂ (K. P. Whitehorn). S. of Dead Sea, V.1934, 1 ♂ (O. Theodor). Tiberias, 3.V.1931, 1 ♂ (*B. M.*).

ARABIA: Asir: Shi-Aera, nr. Qunfida, 3.II.1946, 1 ♂. Wadi Lith, 21.I.1946, 1 ♀ (E. S. Brown). E. of Sabiya, 19.I.1950, 2 ♂♂, 3 ♀♀. Wadi Beash, nr. Sabiya, 7.I.1950, 3 ♂♂, 2 ♀♀. Lahavash, foothills N. E. of Sabiya, 500-800 ft., 18.I.1950, 2 ♂♂, 3 ♀♀. Sabiya, 17,10 N., 42,30 E. (L. A. Tillin). Ahwash, 26 m. N. E. of Sabiya, 20.XII.1946, 1 ♂. Sabiya, 15-28.XII. 1946, 2 ♂♂; 3.I.1947, 1 ♀. Knowba, 16,50 N., 43,12 E., 9.XI. 1947, 1 ♂, 2 ♀♀. Hibata Plain, 20 m. N. E. of Sabiya, 4.XII. 1947, 1 ♂. Harub, 17,10 N., 42,50 E., 21.XI, 22.XII.1947, 2 ♂♂, 2 ♀♀. Lahsiba, 19,20 N., 41,20 E., I-II.1946, 2 ♂♂, 2 ♀♀. Harub to Feifa, 17,15 N., 42,50 E., 29.XII.1946, 1 ♂ (G. V. Popov). Sabiya, III.1945, 3 ♀♀. Huweris, 19,00 N., 41,20 E., 30.IV.1949, 1 ♀ (A. R. Waterston). Wadi Qanuna, nr. Qunfida, 19,14 N., 41,11 E., 31.III.1948, 1 ♂ (B. P. Uvarov)



Map. 6.—Distribution of species of the group *T. grandis:* ● — *T. annulata.* ▲ — *T. g. grandis.* ■ — *T. g. fitzgeraldi.* ◆— *T. indica.*

(*B. M.*). Yemen: Wadi Ghailama, tributary of Wadi Siham, ca. 2,200 ft., 11.III.1938, 1 ♂ (B. M. Exped. H. Scott & E. B. Britton) (*B. M.*). Aden Protectorate: Al Huseini near Lahej, ca. 450 ft., 29.XI.1937, 1 ♀ (B. M. Exped. H. Scott & E. B. Britton). Aden, El Khodad, 17.V.1932, 1 ♂, 2 ♀♀. N. of Aden, Sheikh Othman. 29.XII.1932, 2 ♂♂, 2 ♀♀; 30.I.1933, 1 ♂. 30 m. N. of Aden, 6.II.1933, 1 ♀ (Mrs. M. C. Rant). N. of Aden, Lahej, 10.I.1932, 1 ♀; 12.II.1932, 1 ♀ (E. B. C. Betts). Lahej, X.1935. 1 ♂. 2 ♀♀. Abyan, 30 m. E. of Aden, XII.1938, 5 ♂♂, 5 ♀♀. N. W. Mukalla, Limestone Mts., 3,000 ft., XI.1935, 1 ♂ (R. C. M. Darling). Shuqra, 13,20 N., 45,40 E., 23-VII.1949, 1 ♀ (Adefris Bellehu) (*B. M.*). Hadramaut: Shiban, 15,56 N., 17,20 N., 54,20 E., Fuzul, 1,350 ft., 14-18.XI.1930, 1 ♂, 1 ♀. Qara Mts., Ain al Rizat, 250 ft., 31.X.1930, 1 ♂, 3 ♀♀. Qara Mts., Sahalnaut, 250 ft., 4.XI.1930, 1 ♀. Qara Mts., Khiyunt, 1,750 ft., 11.XI.1930, 2 ♀♀ (B. S. Thomas). Hadramaut, Wadi Hajir, Meifa, 14,10 N., 48,50 E., 23.VIII.1949, 3 ♂♂, 2 ♀♀ (K. M. Guichard). Mecca, 6.X.1931, 1 ♀; 10.I.1935, 1 ♂. Jumun, 20.XI.1928, 1 ♂. Sharaya, 4,000-5,000 ft., 22.II.1934, 1 ♂ (H. St. J. B. Philby) (*B. M.*).

Truxalis grandis fitzgeraldi subsp. n.

(Figs. 82, 83.)

♀ (Type). Differs from the typical subspecies by smaller size of body, more rounded apex of the fastigium of vertex. The colouration of basal disc of wing bluish purple; the pattern of elytron of the type 2, 3, 4.

♂ (Paratype). Differs from the typical subspecies by smaller size, also by the more rounded apex of the fastigium of vertex; colouration of basal disc of wing intensely crimson-red (without orange shade); elytron uniformly green.

Length of body ♂ 33.5-38, ♀ 60-70; frons ♂ 8.5-9.5, ♀ 14-15; pronotum ♂ 5-6, ♀ 9-10,5; elytron ♂ 26-29, ♀ 49-55; hind femur ♂ 20-22, ♀ 35-39.

ARABIA: Oman: Shinas, Batina Coast, 24,45 N., 56-27 E., 21.I.1944, 3 ♂♂, 3 ♀♀ (including type). El Khatt, 13.IV.1943, 1 ♂. Bureimi, 24,15 N., 55.45 E., 1.III.1944, 2 ♀♀ (D. F. Fitzgerald). Geriyat, E. of Muscat, 17.I.1950, 2 ♂♂ (K. M. Guichard) (*B. M.*). Muscat, X.1896, 1 ♂ (Maindron) (*P. M.*).

PERSIA: S. E. Persia; Qasrqand, Ghassr-Ghand, 22.VI.1949, 1 ♂, 1 ♀ (Makoui). Karwanda, to Bampur, 23.IV.1901, 1 ♂ (Zarudny) (*B. M.*).

PUNJAB: Lyallpur, 23.II.1914, 1 ♂; 4.VIII.1915, 1 ♂; X-XI.1922, 2 ♂♂, 1 ♀ (*B. M.*). Khewra, Salt Range, 32,45 N., 73,00 E., IX-X.1930, 10 ♂♂, 9 ♀♀ (S. L. Hora & H. S. Pruthi). Rawalpindi, 33,30 N., 73,00 E., VI-VII.1917, 2 ♀♀ (*I. M.*).

Truxalis annulata Thunb.

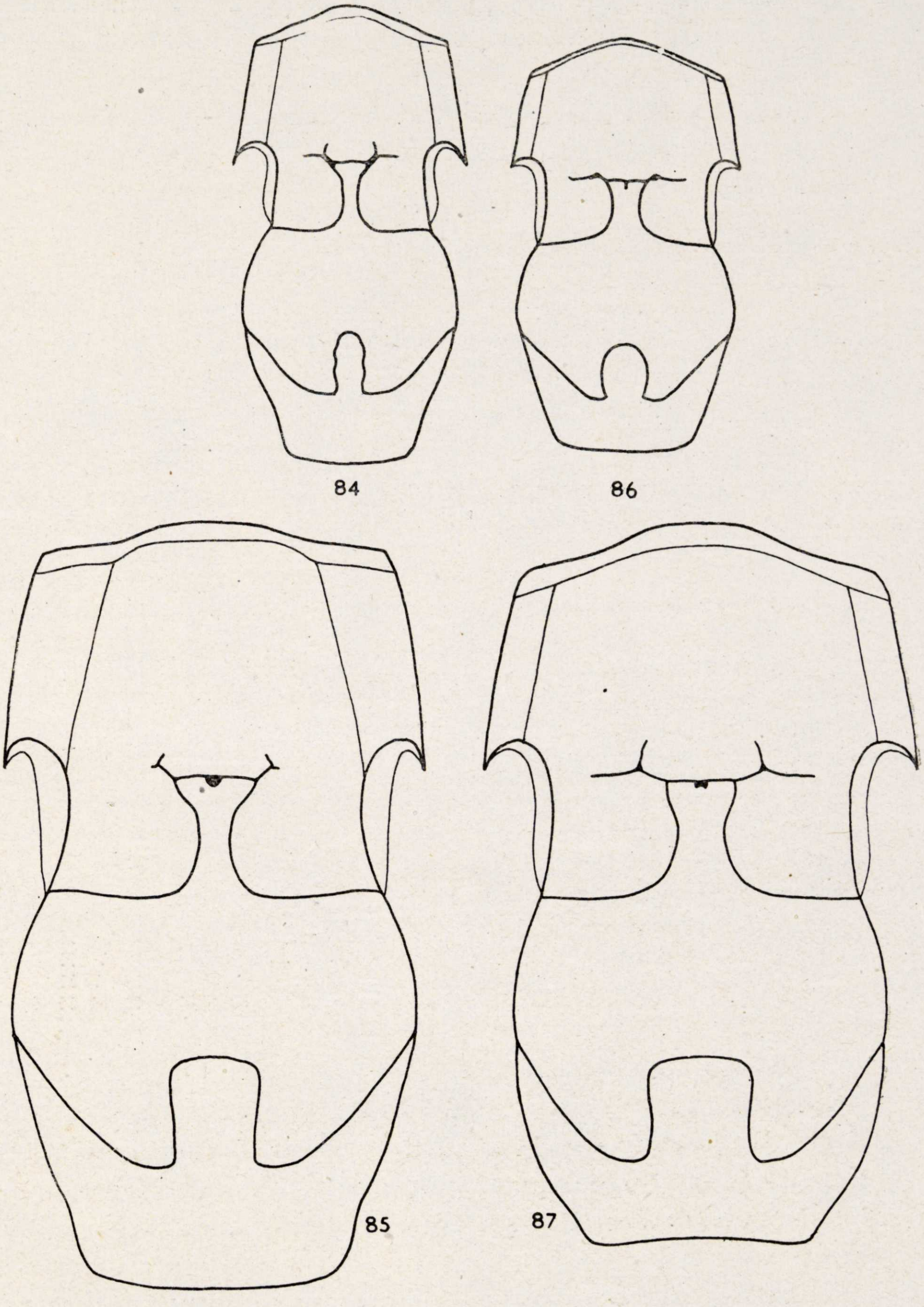
(Figs. 86-93, 222.)

1815. *Truxalis annulatus*, ♂, Thunberg, Mém. Acad. Pétersb., 5: 267, pl. 3.
1815. *Truxalis nebulosus*, ♀, Thunberg, Mém. Acad. Pétersb., 5: 267, pl. 3.
1815. *Truxalis bilineatus*, ♀, Thunberg, Mém. Acad. Pétersb., 5: 268.
1827. *Truxalis annulatus* Thunberg, Nova Acta Upsal, 9: 81.
1827. *Truxalis undatus*, ♂, Thunberg, Nova Acta Upsal, 9: 82.
1827. *Truxalis bilineatus* Thunberg, Nova Acta Upsal, 9: 82.
1827. *Truxalis nebulosus*, Thunberg, Nova Acta Upsal, 9: 83.
1830. *Truxalis pharaonis* Klug, Symb. Phys., no. 1, pl. 14.
1873. *Acrida nebulosa* var. a., Stål, Rec. Orth., 1: 96, no. 5.
1910. *Acridella pharaonis* Kirby, Cat. Orth., 3: 95, no. 1.
1910. *Acridella nasuta* (Partim), Kirby, Cat. Orth., 3: 95, no. 3.

♀. Large and slender.

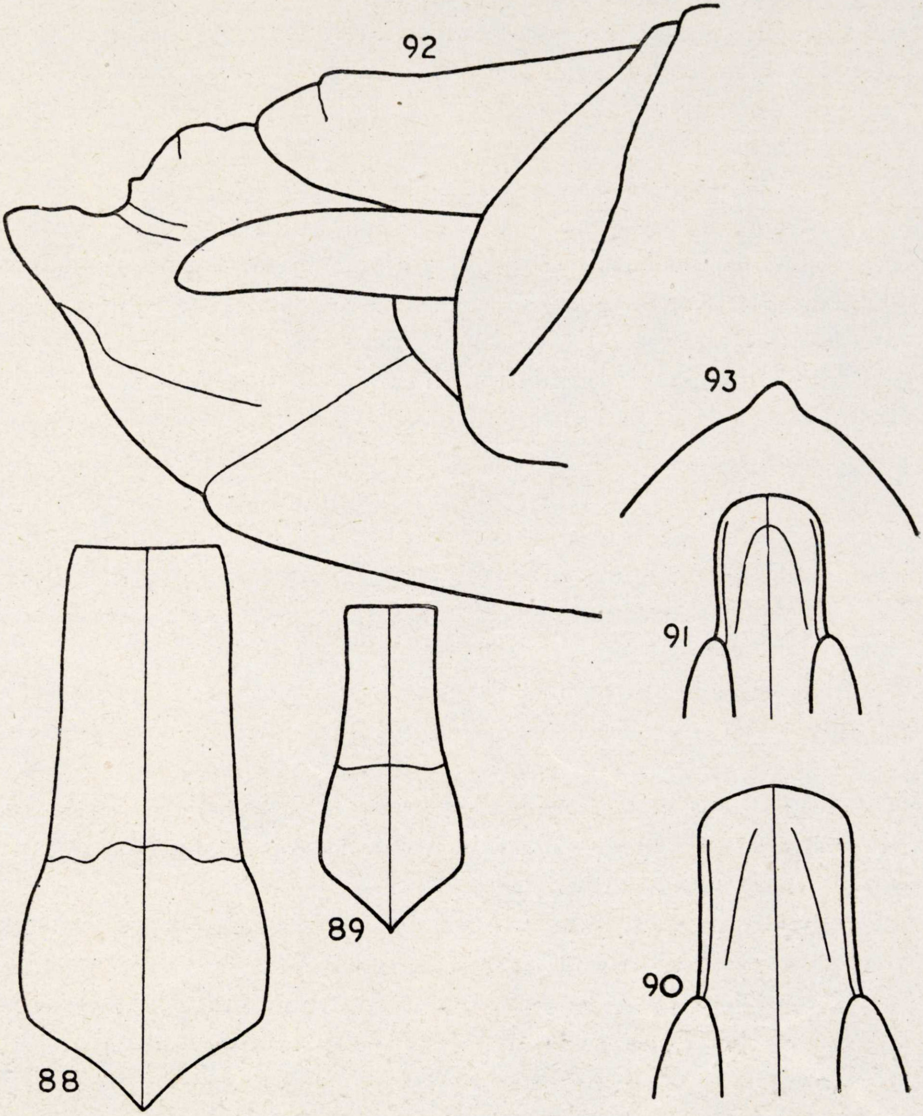
Antenna rather shorter than head and pronotum together, strongly widened and suddenly narrowed in the apical fourth; 3rd, 4th and 5th basal segments incompletely divided. Fastigium of vertex broad, with straight parallel lateral sides and broadly rounded apex.

Lateral carina of pronotum, in prozona slightly convergent forwards, or straight, parallel; in metazona excurved and divergent. Disc of prozona tectiform; metazona flat, weakly raised, its posterior margin acutangulate, with incurved sides. Ratio of prozona to metazona — 1.2. Mesosternal interspace twice as



Figs. 84-87.—Meso- and metasternum. 84) *Truxalis grandis* male. 85) Ditto, female. 86) *Truxalis annulata* male. 87) Ditto, female.

long as broad, weakly broadened at the apex, with slightly incurved lateral sides. Metasternal interspace broad, almost square.



Figs. 88-93.—*Truxalis annulata.* 88) Pronotum of female. 89) Ditto of male. 90) Fastigium of vertex of female. 91) Ditto of male. 92) Subgenital plate of male in profile. 93) Ditto, apex from above.

Elytron projecting well beyond the hind knee, its anterior margin almost straight, apex subacute. Ratio of length to width — 10.0-9.8.

Hind femur weakly produced beyond the apex of the abdomen. Hind knee with short subacute lateral lobes. Arolium large and broad half the length of claw.

General colouration brownish ochraceous or greenish. Elytron with pattern of the type 4. Base of wing bluish; basal disc of wing mat crimson-pink; vein, tessellate pattern, except the apical portion, brown.

♂. Of medium size and slender.

Antenna as long as head and pronotum together, weakly broadened in the basal part, 3rd and 4th basal segments incompletely divided. Fastigium of vertex broad, with straight parallel lateral sides and broadly rounded apex.

Lateral carinae of pronotum, in prozona, incurved and weakly divergent backwards; in metazona feebly excurved and divergent. Disc of prozona weakly tectiform, in metazona flat and feebly raised, its posterior margin acutangulate with incurved sides. Ratio of metazona to prozona — 1-1.1. Mesosternal interspace half as long again as broad, slightly narrowed in the middle, with little broadened apex. Metasternal interspace broad and elongated.

Elytron well projecting beyond the hind knee; its anterior margin well excurved, apex subacute; ratio of length to width — 7.5.

Hind femur well produced beyond the apex of the abdomen. Hind knee with short subacute lateral lobes. Arolium large and broad, three fourths the length of claw.

Subgenital plate short, in profile with elongated apex; from above, with short apical, obtuse projection.

General colouration brownish. Elytron with characteristic pattern of the Type 3. Basal disc of wing intensely cinnabar-red, remaining part of membrane yellowish or colourless; main vein dark; tessellate pattern brownish.

Length of body ♂ 40-41, ♀ 63-67; frons ♂ 10-11, ♀ 15-16; pronotum ♂ 6.5-7, ♀ 11-12; elytron ♂ 33-37.5, ♀ 59-62; hind femur ♂ 25-27, ♀ 38-41.

ALGERIA: Azazga, Kabilie, IX.1920, 2 ♀♀ (R. & E. H.) (*B. M.*). Bone, 4.X.1896, 1 ♂, 1 ♀ (A. E. Eaton) (*B. M.* and *O. M.*). Algier, Brisout, 1 ♂, 1 ♀ (*O. M.*). Chabet-el-Ameur, 7.X.1883, 1 ♂, 1 ♀ (Finot Coll.). Tarfaia, 1 ♂, 1 ♀. St. Charles, 1 ♂, 1 ♀ (A. Thery) (*P. M.*). Algerie, 3 ♂♂ (*Geneva M.*).

TUNISIA: Gederda, Oued Medierda, X.1927, 1 ♀ (M. Fumagalli) (*Genoa M.*). St. Germain, VIII.1920, 9 ♂♂, 3 ♀♀ (Blanc) (*O. M.*).

ANGLO-EGYPTIAN SUDAN: Near Gedaref, 1 ♀. Um Sheiderat, 7.VIII.1941, 1 ♀ (R. J. V. Joyce) (*B. M.*).

KENYA: Emaly range, Sultan Hamud, 4,900-5,900 ft., II.1940, 2 ♀♀. Small swamp near Kibwezi, 02,22 S., 37,54 E. (2,900 ft.), 10-12.VI.1947, 5 ♀♀ (D. K. Kevan & R. Babault) (*B. M.*).

I established the synonymy of this species after examination of the following types of Thunberg's collection in the Uppsala Museum:

1. *Truxalis annulatus* represented by a single male which appears to be the male of *T. nebulosus* Thunb.
2. *Truxalis nebulosus* represented by two female specimens, one of which is a female of *Truxalis annulatus* and another belongs to the genus *Acrida* Linné.
3. *Truxalis bilineatus* Thunb. represented by a single female, which is identical with *T. nebulosus* Thunb.
4. *Truxalis undatus* Thunb. represented by a single male identical with the male of *T. annulatus* Thunb.

Out of all these names, *T. annulatus* has priority, as it was described earlier than *T. nebulosus* by half a page, and earlier than all the other species mentioned.

Truxalis pharaonis Klug which was recently confused with *Truxalis mesopotamica* sp. n. from Iraq is also synonymous with *T. annulata*. Specimens of *T. annulata* from A.-E. Sudan agree with Klug's figure of *T. pharaonis*.

T. annulata is related to the group of *T. grandis* and is nearest to this last species, but is well differentiated from the latter by the shape of mesosternal interspace and form of mesosternum (Figs. 84-87) and by the colouration of the basal disc of wing.

Truxalis indica (I. Bol.).

(Figs. 94-99, 221.)

1902. *Acrida* (*Acridella*) *unguiculata* Ramb., var. *indica* I. Bolívar, Ann. Soc. Ent. France, 70: 589.

1910. *Acridella indica* Kirby, Cat. Orth., 3: 97, no. 4.

♀ (Type. Redescription.). Of medium size and moderately slender.

Antenna as long as head and pronotum together, moderately widened, and gradually narrowed to the apex; 3rd, 4th and 5th basal segments incompletely divided. Head slender. Fastigium of vertex with straight parallel sides and rounded apex.

Pronotum rather saddle-shaped; the lateral carinae, in prozona, almost straight, weakly incurved, in metazona strongly excurved and divergent; disc of prozona weakly tectiform, in metazona flat and slightly raised, its posterior margin acutangulate, with incurved sides. Ratio of metazona to prozona — 1.2. Mesosternal interspace moderately broad, with incurved lateral sides and broadened apex. Metasternal interspace little longer than broad.

Elytron moderately projecting beyond the hind knee, its anterior margin straight, apex slightly narrowed and obtuse. Ratio of length to width — 9.1.

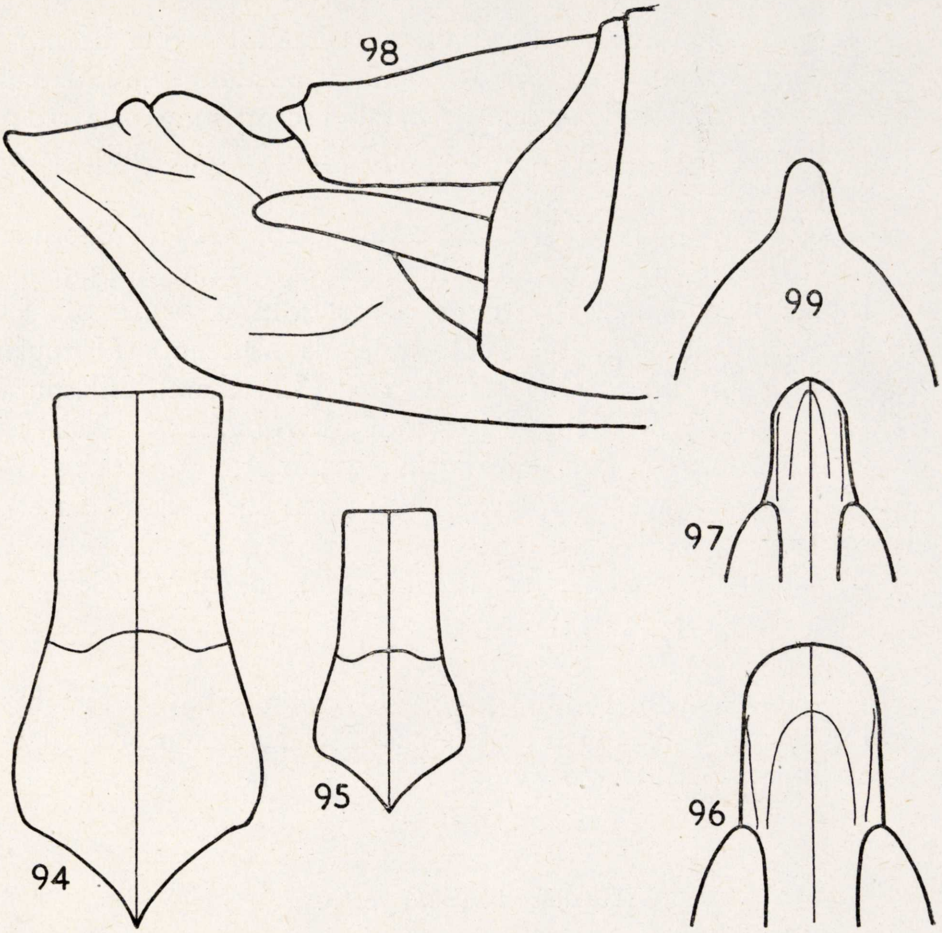
Hind femur well produced beyond the apex of the abdomen. Hind knee with short acute and comparatively broad lateral lobes. Arolium broad, almost half the length of claw.

General colouration yellowish ochraceous. Lateral carina of pronotum with an indistinct dark stripe along the internal side. Elytron with pattern of the Type 4. Basal disc of wing intensely bright pink; the tessellate pattern light-brownish.

♂ (Paratype. Redescription.). Of medium size and slender.

Antenna little shorter than head and pronotum together, moderately widened, 3rd and 4th basal segments incompletely divided. Head slender. Fastigium of vertex with incurved lateral sides and rounded almost parabolic apex.

Lateral carina of pronotum, in prozona, straight and weakly divergent backwards; in metazona strongly excurved and divergent disc of prozona feebly tectiform, in metazona flat and slightly raised, its posterior margin acutangulate, with weakly incurved sides. Ratio of metazona to prozona — 1.1. Mesosternal interspace moderately broad, with incurved lateral sides and broadened apex. Metasternal interspace twice as long as broad.



Figs. 94-99.—*Truxalis indica.* 94) Pronotum of female. 95) Ditto of male. 96) Fastigium of vertex of female. 97) Ditto of male. 98) Subgenital plate of male in profile. 99) Ditto, apex from above.

Elytron little projecting beyond the hind knee, its anterior margin slightly excurved, apex weakly narrowed and subobtuse. Ratio of length to width — 8.2.

Hind femur well produced beyond the apex of the abdomen.

Hind knee with short acute and comparatively broad lateral lobes. Arolium two thirds as long as claw.

Subgenital plate, in profile, comparatively long, with acute apex and weakly incurved external margin; from above, with elongated, subacute projection.

General colouration yellowish-green. Lateral carina of pronotum with an indistinct, narrow, dark stripe along the internal side. Elytron uniformly greenish. Basal disc of wing pale red; the tessellate pattern light brownish. Hind femur with two indistinct dark fascia in the apical half.

Length of body ♂ 36.5, ♀ 60; frons ♂ 10, ♀ 15; pronotum ♂ 6, ♀ 10; elytron ♂ 29, ♀ 52; hind femur ♂ 23.5, ♀ 35.5.

INDIA: Kodaikanal, 1 ♀ (Type) (Décoly). India Or., 1 ♂, 1 ♀ (P. Castets) (Coll. Pantel et Bolívar, Paris Museum). Nagpur, 21°9′ N., 79°9′ E., 7.VII.1927, 1 ♀ (J. L. Khare). Bilaspur, 22,00 N., 82,15 E., Central Provinces, II.1907, 1 ♀. Bellary, 14,50 N., 76,50 E. Dt. Ramandrug, 3,500 ft., 30.VIII.1918. 1 ♀ (*B. M.*). Vizagapatan, 17,42 N., 83,20 E., 3 ♀♀ (Fraser) (*W. M.*).

CEYLON: «Ceylon», 1912, 1 ♂ (E. E. Green) (*B. M.*). Ceylon, 1 ♂, 1 ♀ (Col. Br.-Watt) (*W. M.*).

BURMA: «Burma», 1903, 1 ♀ (*B. M.*).

T. indica belongs to the group *T. grandis*, but differs by form of lateral carinae of pronotum, form of fastigium of vertex, colouration of basal disc of wing, and by general habitus.

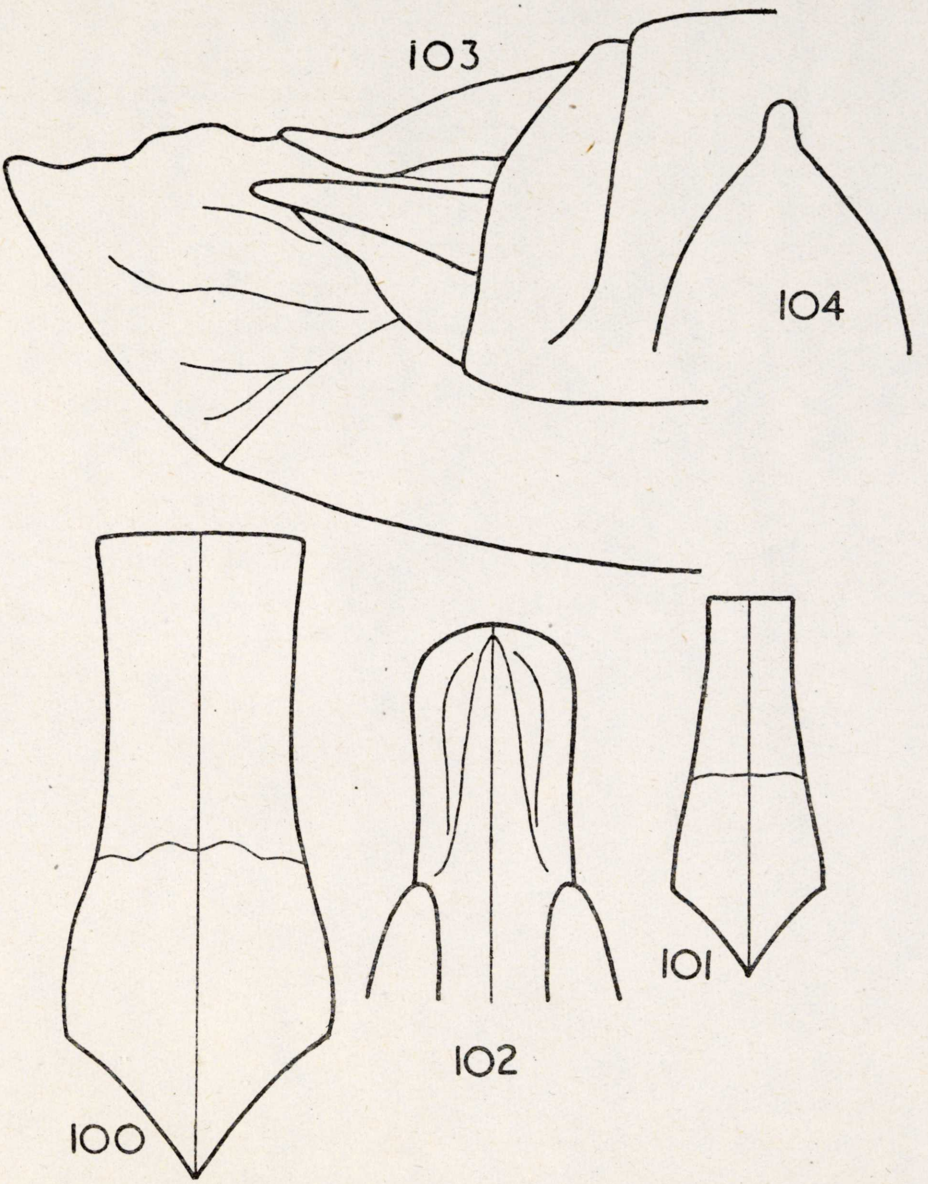
Truxalis siamensis sp. n.

(Figs. 100-104, 223.)

♀ (Type). Of medium size and very slender. Head slender and thin. Fastigium of vertex long and comparatively narrow with straight lateral sides and rounded apex.

Pronotum slender, the lateral carina, in prozona, weakly incurved; in metazona, excurved and divergent. Prozona as long as metazona, its disc subcylindrical, in metazona flat, the posterior margin acutangulate, with weakly incurved sides. Mesosternal interspace twice as long as broad, with incurved lateral sides and slightly broadened apex. Metasternal interspace longer than broad.

Elytron well produced beyond the hind knee, its anterior margin straight, apex acute. Ratio of length to width — 9.5.



Figs. 100-104.—*Truxalis siamensis.* 100) Pronotum of female. 101) Ditto of male. 102) Fastigium of vertex of female. 103) Subgenital plate of male in profile. 104) Ditto, apex from above.

Hind femur well produced beyond the apex of the abdomen. Hind knee with short, narrow acute lateral lobes. Arolium broad, slightly longer than half the length of claw.

General colouration ochraceous. Elytron with pattern of the type 4. Basal disc of wing light reddish; main veins pale reddish, the tessellate pattern light brownish.

♂ (Paratype). Of medium size and very slender.

Antenna shorter than head and pronotum together, moderately widened and gradually narrowed to the apex; the 3rd and 4th basal segments incompletely divided.

Pronotum slender; lateral carinae in prozona, weakly incurved and divergent, in metazona scarcely excurved and divergent; disc of prozona subcylindrical, in metazona flat, its posterior margin acutangulate with weakly incurved sides, transversal sulcus just anterior to the middle of the pronotum. Mesosternal interspace twice as long as broad with incurved lateral sides and broadened apex; metasternal interspace half again as long as broad.

Elytron well produced beyond the hind knee, its anterior margin almost straight, apex acute; ratio of length to width — 9.

Hind femur well produced beyond the apex of the abdomen. Hind knee with short acute lateral lobes. Arolium large, two thirds the length of claw.

Subgenital plate of medium length, in profile with subacute apex, from above, with narrow finger-shaped projection.

Colouration, including wings, as in the female.

Length of body ♂ 34, ♀ 60; frons ♂ 10, ♀ 16; pronotum ♂ 6, ♀ 10; elytron ♂ 36, ♀ 52; hind femur ♂ 23.5, ♀ 36.5.

SIAM: Hua Hir, 20.XII.1927, 1 ♀ (Type) (W. R. Ladell) (*B. M.*).

There are 1 ♂ and 1 ♀ from Vienna Museum with labels: «Molluccas», Depuiset leg. Coll. Brunn. Watt. but the locality is probably wrong, because no species of *Truxalis* have so far been recorded from the Malayan Archipielago.

«*Truxalis nasutus*» Tinkham, 1935 (Lingnan Sc. Journ., 5: 14, Canton), which he describes, from the Wachow, southeastern Kwangsi (China), probably is *T. siamensis* because Tinkham quoted that the male has reddish-pink basal disc of wing.

This species is not closely related to any other species of the genus. It is very well differentiated by the slender habitus, long fastigium of vertex and unique colouration of wing, which is the same in both sexes.

Truxalis procera Klug.

(Figs. 105-110, 213.)

1830. *Truxalis procera* Klug, Symb. Phys., no. 4, pl. XVI, fig. 2.
1853. *Tryxalis klugii* (Partim) Fieber, Lotos, 3: 97, no. 1.
1910. *Acridella nasuta* (Partim) Kirby, Cat. Orth., 3: 96, no. 3.

♀. Large and slender.

Antenna as long as head and pronotum together, moderately widened, and gradually narrowed to the apex, with 3rd and 4th basal segments incompletely divided. Head very slender and elongated. Fastigium of vertex long, with incurved or almost straight and parallel lateral lobes; apex broadly rounded.

Lateral carinae of pronotum, in prozona, sinuate and parallel; in metazona excurved and divergent. Prozona subcylindrical, metazona weakly raised and almost flat, its posterior margin obtusangulate with straight sides, or acutangulate with slightly incurved sides, or broadly rounded with excurved sides; between these forms there are all intermediate stages. Ratio of prozona to metazona — 0.9-1.1. Mesosternal interspace slightly longer than broad, with feebly incurved sides. Metasternal interspace as long as broad.

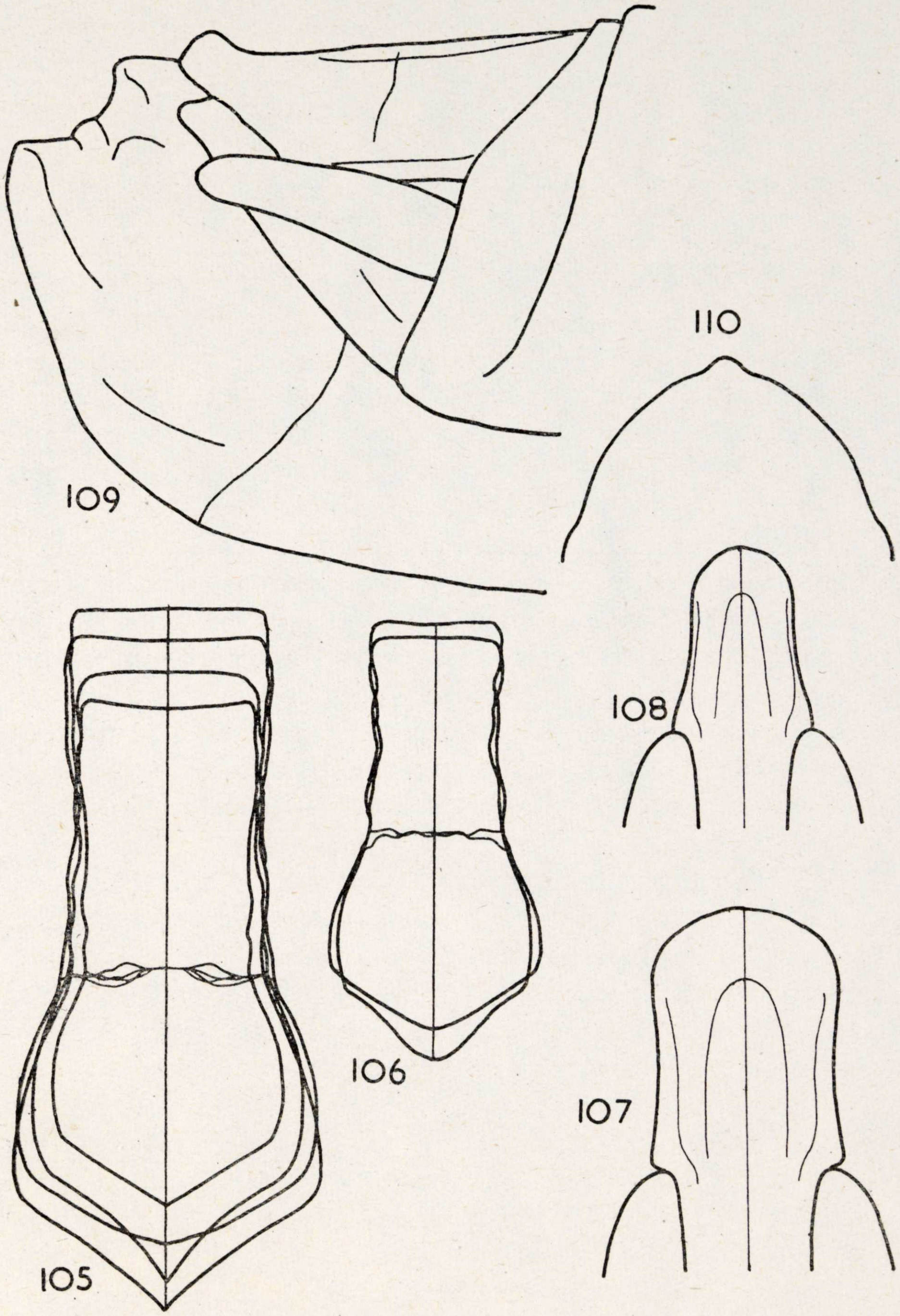
Elytron narrow, ratio of length to width — 10.1-10.8, projecting well beyond the hind knee, its anterior margin straight, apex narrow and subacute or slightly obtuse.

Hind femur produced beyond the apex of the abdomen. Hind knee with short and acute upper and lower lateral lobes. Arolium narrow, small, one fourth the length of claw.

General colouration, brownish, dirty yellowish, greenish or greyish. Antenna with pale apical portion. Elytron with pattern of the type 5, 6. Basal disc of wing brownish pink diffusing to pink, the rest of the wing colourless or weakly yellowish or greenish; main veins sometimes dark and infumate in the apical portion; the tessellate pattern moderately broad and brownish.

♂. Large and very slender.

Antenna as long as head and pronotum together, or rather shorter, comparatively little widened, all segments distinctly separated, or 3rd and 4th basal segments incompletely divided.



Figs. 105-110.—*Truxalis procera.* 105) Pronotum of female and its variations. 106) Ditto of male. 107) Fastigium of vertex of female. 108) Ditto of male. 109) Subgenital plate of male in profile. 110) Ditto, apex from above.

Head very slender and elongated. Fastigium of vertex long, widened in the base, its lateral margins more or less incurved and divergent backwards, apex rounded.

Lateral carinae of pronotum, in prozona sinuate and parallel, in metazona excurved and divergent; prozona subcylindrical, metazona weakly raised and almost flat, its posterior margin obtusangulate with incurved sides and obtuse apex or scarcely obtusangulate, almost broadly rounded, with straight sides, between these forms there are all intermediate stages. Ratio of metazona to prozona — 1.1-0.9. Mesosternal interspace half as long again as broad with weakly incurved sides. Metasternal interspace twice as long as broad.

Elytron narrow, ratio of length to width about 8.6, projecting well beyond the hind knee its anterior margin weakly excurved, apex narrow and acute.

Hind femur well produced beyond the apex of the abdomen. Hind knee with short and acute upper and lower lateral lobes. Arolium very small and narrow, one fourth the length of claw.

Subgenital plate short subconical, its posterior margin, in profile, straight or slightly excurved, apex obtuse, from above, apex obtusangulate with short rounded projection.

General colouration brownish, dirty yellowish or greenish. Apical part of antenna pale; lateral carina of pronotum light, with an indistinct dark stripe along the internal side or without it; median carina sometimes light. Elytron with pattern of the type 5; basal disc of wing light lemon-yellowish, diffused over almost the whole wing, apical part colourless; main veins dark at the apex slightly infumate; tessellate pattern moderately broad, brownish. Hind femur with three dark spots alternating with light ones. Tibia in the basal part with light and dark broad rings. Last abdominal tergites and supra-anal plate with large dark spots.

Length of body ♂ 43.5-54, ♀ 67-94; frons ♂ 10.5-13, ♀ 16,20; pronotum ♂ 7-8, ♀ 10-13; elytron ♂ 37-45, ♀ 54-69; hind femur ♂ 26-23, ♀ 40-48.

RÍO DE ORO: El Addada, 21° N., 14° W., V.1911, 1 ♀ (R. Chudeau). Togba, 22,50 N., 15,45 W., 14.IV.1938, 1 ♂ (*P. M.*).

MAURITANIA: Monnane (Collines littorales), 19,05 N., 16,10

W., 23.II.1937, 1 ♂, 2 ♀♀. Tassot, 18,50 N., 16,10 W., 26.II. 1937, 1 ♂. Oued au Sud du Cap el Freh, 22.II.1937, 1 ♂. Tasiast Rhot Atoui-Jmkebden, 21,00 N., 16,00 W., 6.II.1937, 1 ♀ (Mission Antiacridien). Côte Atlantique du Sahara, Nouakchott, 18.07 N., 15,58 W., 20.X.1908, 1 ♀ (A. Gruvel & R. Chudeau) (*P. M.*).

ALGERIA: Sands of El Arich, S. E. of Touggourt, 39,09 N., 06,02 E., 9.VI.1912, 1 ♀. Oued Nq, Mzab country, 32,40 N., 04,00 E., 11-30.IV.1914, 1 ♀ (Hartert & Hilg) (*B. M.*).

TUNISIA: Nefta, 34° N., 8° E., 30.IV.1927, 1 ♀ (G. Dumont) (*P. M.*).

TERR. DU SUD: Adrar (20° N.-1-4° E.), Adbeinat-Cherig, 11.XII.1936, 1 ♂ (Mission Antiacridien) (*P. M.*).

NIGER COLONY: Agades, 16,59 N., 07.56 E., VIII.1947, 1 ♀ (L. Chopard). Tibesti (20-22° N.-16-20° E.), Zonar, 700 m., 1 ♀; V.1938, 1 ♀. De Seida á Galaka, Tibesti au Borcou, 1932, 1 ♂ (Prince Sixtede Boorbon) (*P. M.*).

CHAD TERRITORY: Eguei, 15,50 N., 16,10 E., 24.VII.1935, 1 ♂, 1 ♀ (Mission Antiacridien) (*P. M.*).

LIBYAN DESERT: N. W. Jebel Meidob (about 15° S. 25° E.), 17.III.1935, 1 ♂ (M. H. Mason) (*B. M.*).

A.-E. SUDAN: Khor Shellal, 21,59 N., 36,25 E., XII.1933, 2 ♀♀. Khor Shellal and Ardeb, 25-31.XII. 1933, 5 ♂♂. Adabana, 1.V.1934, 1 ♂ (R. C. M. Darling). Wadi Howa, 29-30.X. 1932, 1 ♂, 1 ♀ (Bagnold Exped.). Khor Arbaat Delta, IV-V.1926, 6 ♂♂, 3 ♀♀. Khor Haroieit, 17.IV.1928, 1 ♂ (H. B. Johnston) (*B. M.*).

ERITREA: Wadi Hem, 24.III.1949, 4 ♀♀, 2 ♂♂. Khor Asrai, 26.III.1949, 3 ♂♂, 1 ♀ (W. J. Stower) (*B. M.*).

BRITISH SOMALILAND: Biyo Dader, 10,24 N., 47,25 E., 15.III.1949, 2 ♂♂, 2 ♀♀. 1 m. S. of Abi Wein, 14.III.1949, 2 ♀♀. Between Karin (9,36 N., 44,38 E.) and La Musa (10,45 N., 46,06 E.), III.1949, 1 ♂. Mugub, 4 m. E. of Berbera, 1.IV. 1949, 1 ♂. Tug Geresa, 6.IV.1949, 1 ♂. Tug Damayateh, 8.IV. 1949, 1 ♂. Tug Fula, 10,05 N., 43,08 E., 12.IV.1949, 1 ♂ (K. M. Guichard) (*B. M.*).

ARABIA: Jidda, I-VI.1929-1936, 15 ♂♂, 15 ♀♀. Mecca, II.1936, 1 ♂. Ashaira, 21,45 N., 40,40 E., 26.V.1936, 1 ♀. Hafair, nr. Qunfida, 10.VIII.1934, 1 ♀. Ma Than (Asir, in the

Tihama near the Yemen frontier), I.1937, 1 ♀. Hawi Valley (Hejas), 20,40 N., 42,40 E., V.1936, 1 ♀. Wadi Qarma (= Qahma), Asir, near Qunfida, II.1937, 1 ♂. Wasita, Hejas, 25.III.1928, 1 ♂. Abu Dhuba, 21,05 N., 39,16 E., 19.II.1928, 1 ♂. Buraiman, 21,39 N., 39,13 E., 11.III.1928, 1 ♂. Mahdatha, 21,50 N., 40,40 E., V.1936, 1 ♂. Riyadh, Central Arabia, VII.1938, 1 ♂ (H. St. J. B. Philby). Jidda, V.1940, 1 ♀ (A. C. Trott). N. of Lith, 27.III.1948, 5 ♂♂, 4 ♀♀, at light (B. P. Uvarov). Shi-Aera nr. Qunfida, 2.II.1946, 1 ♂. Wadi Lith, 20,10 N., 40,20 E., 27.I.1946, 1 ♂ (E. S. Brown). Wadi Jiba, 18,55 N., 41,15 E., 29.III.1948, 2 ♀♀. Lahsiba, 19,20 N., 41,20 E., II.1946, 2 ♀♀. Jidda to Lith, 13.III.1948, 2 ♂♂ (G. V. Popov). Wadi Lasaba, Tihama nr. Qunfida, 9.XII.1945, 1 ♂, 1 ♀. (D. V. Fitzgerald). Wadi Qanuna, XII.1948, 2 ♀♀ (P. R. Stephenson). Rabegh, Hejas, 1. II.1937, 2 ♂♂ (M. Hussein). Wadi Beash, 24.I.1950, 1 ♀. Sabiya, 16.II.1950, 1 ♀. E. of Sabiya, 19.I.1950, 1 ♂ (L. A. Tillin). Aden Protectorate: Aden, VI.1932, 1 ♀ (Mrs. M. C. Rant). Shagra, 3.VII.1949, 1 ♀ (G. V. Popov). Makhnuq, X.1935, 1 ♀. Um Shaebi, X.1935, 1 ♂, at light and among *Panicum* (R. C. M. Darling) (*B. M.*). Oman: Boreimi, 24,15 N., 55,45 E., Jebel Samain, V.1948, 1 ♂, 4 ♀♀. Jebel Mahiq, V.1948. 1 ♀ (W. Thesiger). Sharja, 25,20 N., 55,20 E., I.1944, 1 ♀ (D. V. Fitzgerald), Sharja, 4.V.1949, 2 ♂♂, 1 ♀ (G. V. Popov). Sharja, 21.IV.1949, 1 ♂, 3 ♀♀. Al Kharan, 23.IV.1949, 1 ♂, 1 ♀ (A. R. Waterston). Trucial Oman, Al Kharran, II.1950, 3 ♂♂, 1 ♀ (K. M. Guichard) (*B. M.*).

PERSIA: Prov. Kerman, Bander Abbas, 4.V.1949, 1 ♂ (Fassihi) (*B. M.*).

BALUCHISTAN: Pachi, 22.I.1933, 1 ♂. Zat, Mekran, 26.III. 1935, 1 ♂ (B. Rahman) (*B. M.*).

T. procera was described by Klug from «Arabia felix». Now its area of distribution is known to extend from the Atlantic coast through the whole of Africa to Baluchistan (Map 8).

This species is strongly variable in the form of posterior margin of pronotum and size of body.

Truxalis rubripennis sp. n.

(Figs. 111-116, 212.)

♀ (Type). Medium size and very slender.

Antenna rather longer than head and pronotum together, well widened, and gradually narrowed to the apex, 3rd, 4th and 5th basal segments incompletely divided. Head, in profile, thin, long and slender. Fastigium of vertex moderately long, its lateral margins almost straight, slightly convergent to the apex which is weakly obstusangulate.

Lateral carinae of pronotum in prozona, strongly sinuate and parallel, in metazona strongly excurved and divergent. Prozona subcylindrical; metazona raised and almost flat, its posterior margin sharply acutangulate, with incurved sides; ratio of metazona to prozona — 1.2. Mesosternal interspace comparatively broad, less than half as long again as broad, its lateral sides almost straight, apex feebly widened. Metasternal interspace longer than broad.

Elytron narrow, ratio of length to width — 10-11, well projecting beyond the hind knee; its anterior margin almost straight, and then oblique to the apex, narrowed and acute.

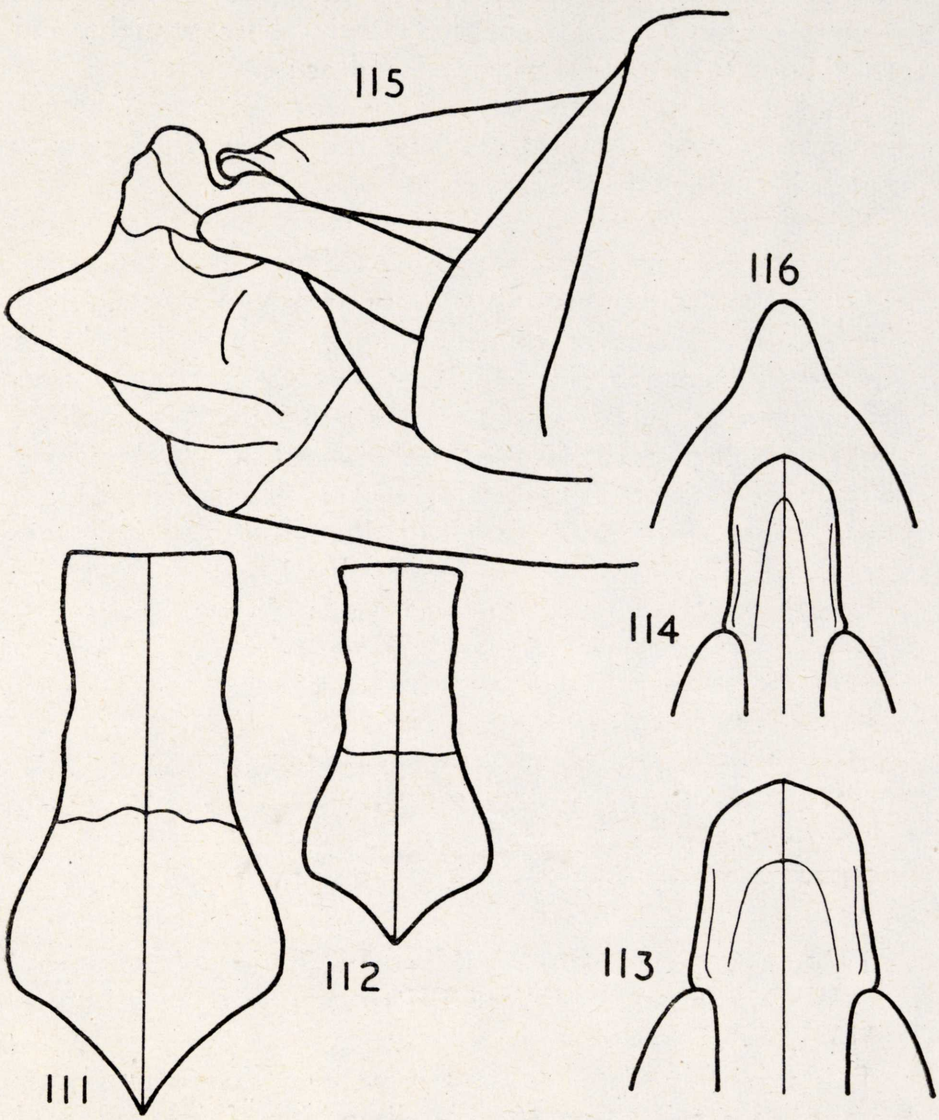
Hind femur well produced beyond the apex of the abdomen. Hind knee with short acute lateral lobes, upper lobe broader and less acute than lower one. Arolium narrow half as long as claw.

General colouration brownish. Apical portion of antenna light yellow: lateral carina of pronotum light with a dark broad stripe along the internal side. Elytron with pattern of the type 5, 6. Basal disc of wing bright wine-red, spread over almost all of the wing except the colourless apical lobe; the tessellate pattern very broad especially towards the external margin.

♂ (Paratype). Medium size and very slender.

Antenna as long as head and pronotum together, moderately widened, 3rd and 4th, and sometimes 5th basal segments incompletely divided. Head, in profile thin, long and slender. Fastigium of vertex long and narrow, its lateral margins incurved and convergent to the apex, which is slightly obstusangulate.

Lateral carina of pronotum in prozona, sinuate and parallel; in metazona strongly excurved and divergent. Prozona subcylindrical; as long as metazona or slightly shorter; metazona raised and almost flat, its posterior margin acutangulate with incurved sides. Mesosternal interspace half as long again as broad, its



Figs. 111-116.—*Truxalis rubripennis.* 111) Pronotum of female. 112) Ditto of male. 113) Fastigium of vertex of female. 114) Ditto of male. 115) Subgenital plate of male in profile. 116) Ditto, apex from above.

lateral margins almost straight, apex slightly widened. Metasternal interspace as long as broad.

Elytron narrow, ratio of length to width 9.3-10, well produced beyond the hind knee; its anterior margin almost straight, and then oblique to the apex, narrowed and acute.

Hind femur projecting beyond the apex of the abdomen. Hind knee with short subacute lateral lobes. Arolium narrow about half the length of claw.

Subgenital plate in profile, short, with short acute apex and large projection above; from above, apex elongated and subacute.

General colouration brownish. Apical portion of antenna light yellow; lateral carina of pronotum light, with a dark broad stripe along the internal side; elytron with pattern of the type 5; basal disc of wing light greenish-yellow; remaining part of wing's membrane colourless; the tessellate pattern broad,, brownish especially from the middle of wing to the external edge. Hind femur above with the three dark and alternating light indistinct spots; hind tibia with light ring in the basal part.

Length of body ♂ 38-41, ♀ 48-62; frons ♂ 9.5-10.5, ♀ 12.5-14; pronotum ♂ 6-6.5, ♀ 8-10; elytron ♂ 30-36.5, ♀ 47-54; hind femur ♂ 22-26, ♀ 31-39.5.

BRITISH SOMALILAND: Haud, 8°31′ N., 45°28′ E., 2,600-2,700 ft., 28-29.VIII.1932, 9 ♂♂, 8 ♀♀ (including type). Bohotle, 9°15′ N., 47°17′ E., 2,400 ft., 7-8.LL.1932, 1 ♂, 1 ♀ (R. H. R. Taylor) (*B. M.*).

KENYA: Kanzeko, I.1942, 1 ♀ (*B. M.*). Lombwua, 1 ♀ (*St. M.*).

TANGANYICA TERRITORY: Mkomasi Station. Semi-desert, 60 m. W. from Amani, 20.VI-14.VII.1937, 1 ♀, 3 ♂♂ (E. Burtt) (*B. M.*).

This species is related to *T. procera* but differs strongly by general habitus, colouration of wing, disposition of the transversal sulcus, more acute angle of metazona of pronotum and by more acute subgenital plate of male.

Truxalis conspurcata conspurcata Klug.

(Figs. 117-122, 210.)

1830. *Truxalis conspurcata* Klug. Symb. Phys., no. 6, pl. 17, fig. 1.
1902. *Acrida variabilis* (Partim) Burr., Trans. Ent. Soc. Lond., 2: 173.
1910. *Acridella nasuta* (Partim) Kirby, Cat. Orth., 3: no. 3.
1933. *Acridella arabica* Uvarov, Proc. Zool. Soc. Lond., 2: 263, f. 2.

♀. Medium size and moderately robust.

Antenna rather shorter than head and pronotum together, moderately widened, sometimes weakly serrated on the base of the external side; 3rd, 4th and sometimes 5th basal segments incompletely divided. Fastigium of vertex with slightly incurved lateral sides and obstusangulate apex.

Pronotum strongly saddle-shaped, the lateral carina, in prozona, varies from incurved to sinuate; in metazona excurved and divergent; posterior margin of metazona obtuse to acutangulate, with almost straight sides; ratio of metazona to prozona — 1-1.2. Mesosternal interspace comparatively broad, without constriction, and widened to the apex. Metasternal interspace as long as broad.

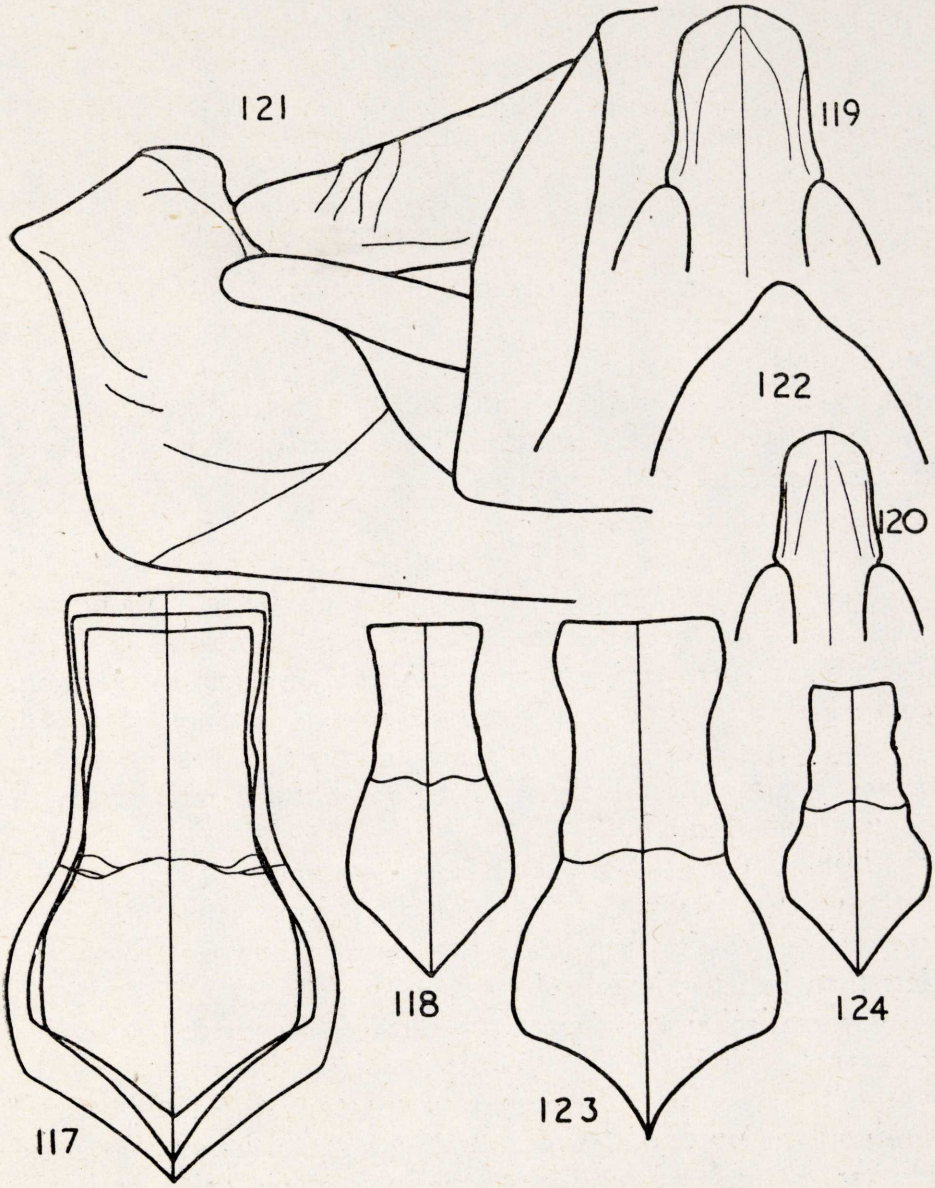
Elytron projecting beyond the hind knee; its anterior margin almost straight, apex little narrowed and obtuse; ratio of length to width — 8.0-9.0.

Hind femur little produced beyond or only just reaching the apex of the abdomen. Hind knee with short, subacute lobes, upper lobe broader than lower one. Arolium moderately narrow less than half the length of claw.

General colouration, green or yellowish-brown. Lateral carina of pronotum light, with a dark stripe along the internal side or without it; elytron with pattern of the type 5, 6 or sometimes uniformly coloured; base of wing blue; basal disc of wing more or less intensely wine-red to purplish; main veins pinkish; remaining part of membrane of the wing colourless or weakly greenish, the tessellate pattern moderately broad, brownish; metanotum, first and second abdominal tergites bluish.

♂. Small and slender.

Antenna as long as head and pronotum together, moderately widened, sometimes weakly serrated on the base of the external



Figs. 117-124.—*Truxalis conspurcata.* 117) Pronotum of female and its variations. 118) Ditto of male. 119) Fastigium of vertex of female. 120) Ditto of male. 121) Subgenital plate of male in profile. 122) Ditto, apex from above. 123) *T. consp. somalia,* pronotum of female. 124) Ditto of male.

side, 3rd, 4th and sometimes 5th basal segments incompletely divided. Fastigium of vertex with almost straight lateral sides, weakly convergent to the apex which is obstusangulate.

Pronotum strongly saddle-shaped, the lateral carinae in prozona, incurved; in metazona excurved and divergent; the posterior margin of metazona obstusangulate with almost straight sides; ratio of metazona to prozona — 1-1.2. Mesosternal interspace comparatively broad, weakly constricted and broadened to the apex. Metasternal interspace longer than broad.

Elytron moderately long, projecting beyond the hind knee; its anterior margin straight; apex weakly narrowed and broadly obtuse; ratio of length to width — 8.2-8.3.

Hind femur well produced beyond the apex of the abdomen. Hind knee with short, subacute lateral lobes, upper lobe broader than lower one. Arolium narrow, less than half the length of claw.

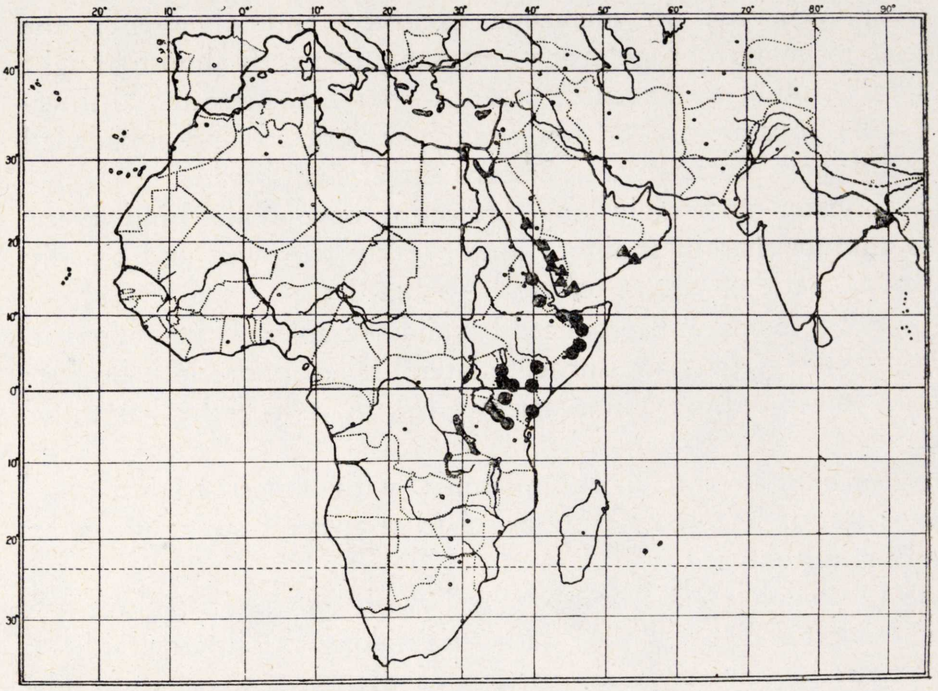
Subgenital plate short, in profile, with almost vertical posterior margin and short acute or subacute apex; from above, apex subconical obtuse.

General colouration green or yellowish-brown. Lateral carinae of pronotum light, with a dark stripe along the internal side or without it; elytron with pattern of the type 5, or uniformly coloured; basal disc of wing greenish-yellow; the tessellate pattern brownish; remaining part of the wing colourless.

Length of body ♂ 32-38, ♀ 58-66; frons ♂ 9-10, ♀ 13.5-15.5; pronotum ♂ 5.5-6.5, ♀ 9-11; elytron ♂ 29-33, ♀ 51-56; hind femur ♂ 20-22, ♀ 35-37.

ARABIA: Doga, 19°30′ N., 41°00′ E., III.1946, 1 ♀. Asir, Harub, 32 m. N. E. of Sabiya, 21.X.1947, 1 ♀, 1 ♂. Lahsiba, 19°20′ N., 41°20′ E., XI.1946, 1 ♂, 1 ♀ (G. V. Popov). Wadi Qanuna, nr. Qunfida, 31.III.1948, 2 ♀♀ (B. P. Uvarov). Asir, Knowba, 16°50′ N., 43°12′ E., 9.XI.1947, 3 ♀♀ (G. V. Popov). Lith, III.1936, 1 ♀ (R. C. M. Darling). West Aden Protect., Dhala, 4,800 ft., 12-28.IX.1937, 3 ♀♀, 5 ♂♂ (H. Scott & E. B. Britton). Asir, Shi-Aera, nr. Qunfida, 2-3.II.1946, 2 ♂♂. Wadi Lahsiba, nr. Qunfida, 4.II.1946, 2 ♂♂. Jidda, 29.XII.1920, 1 ♂ (Philby). Yemen, Wadi Rasyan, lower foot-hills of Tihama, near Hais, 12.VIII.1946, 1 ♂ (A. R. Waterston). Wadi Yiba, 18°55′ N., 41°15′ E., 29.III.1948, 2 ♂♂ (B. P. Uvarov). Asir, Wadi

Mishrif, 17°02′ N., 42°59′ E., 12.XI.1947, 1 ♂ (G. V. Popov). Mishaqa, 9.XII.1936, 1 ♂ (Philby). Sabiya, 16.II.1950, 2 ♀♀; 21.I.1950, 1 ♀. Lahawash, 18.I.1950, 4 ♂♂, 3 ♀♀. Wadi Beash.



Map. 7.—Distribution of ▲ — *T. conspurcata conspurcata.* ● — *T. conspurcata somalia.*

21.I.1950, 1 ♂. E. of Sabiya, 19.I.1950, 4 ♂♂ (L. A. Tillin) (*B. M.*).

The specimens with the purplish basal disc of wing: Hadhramaut, Dhofar, Salala, 26.IX-20.X.1943, 4 ♂♂, 3 ♀♀ (D. V. Fitzgerald); 20.VIII.1949, 2 ♂♂, 3 ♀♀ (G. V. Popov). W. Aden Prot., Dhala, 4,800 ft., 12.IX.1937, 1 ♀. Wadi Tiban, 3,800 ft., 21.X.1937. Wadi Hardaba, 2,400 ft., 11.IX.1937, 1 ♀ (H. Scott & E. B. Britton). Qara-Mts.: Sahalnaut, 350 ft., 4.XI.1930, 1 ♀. Fuzne, 120 ft., 18.XI.1930, 1 ♀ (Type of *T. arabica* Uv.) (B. S. Thomas). Yemen, Wadi Sheriya, Tributary of Wadi Jaira, Circa, 4,000 ft., 19.VIII.1946 (A. R. Waterston). Foothills N. E. of Sabiya, 500-800 ft., 18.I.1950 (L. A. Tillin) (*B. M.*).

This species was described by Klug from «Arabia deserta».

Very variable species, especially in form of the lateral carina of pronotum which fluctuates from incurved to more or less sinuate in prozona and more or less excurved in metazona; also the form of fastigium of vertex is very variable whilst the whole body may vary from robust to more or less slender form. The colouration of the basal disc of wing varies from wine-red to purplish and dark purplish.

T. arabica Uv. is one of the extreme forms of these variations, which were established on a large series of specimens.

Truxalis conspurcata somalia (Burr).

(Figs. 123, 124.)

1902. *Acrida somalia* Burr., Trans. Ent. Soc. Lond., 2: 177.
1910. *Acridella somalia* Kirby, Cat. Orth., 3: 97, no. 6.

This subspecies differs from the typical one by the more slender body; serrated or strongly serrated external side of the base of antenna; and brighter wine-red colouration of basal disc of the female wing, which is distributed over the greater part of wing, especially in the specimens from the southern part of the area.

ERITREA: Massawa, 1 ♂, 1 ♀ (Hildebrandt) (*V. M.*).

ETHIOPIA: Wallo, Yeju escarpment, 20.IX.1949, 1 ♀ (A. Bellehu) (*B. M.*).

BRITISH SOMALILAND: Burao, 1936, 1 ♀. El Humah, Burao Dist., X.1935, 2 ♂♂, 1 ♀. S. of Boramo, 09,43 N., 45,43 E., on Abyssinian border, VIII.1935, 1 ♀. Las Anod, 10,02 N., 42,57 E., 20.VIII.1935, 1 ♀; 16.XI.1935, 1 ♂ (E. F. Peck). Haud, 08,31 N., 45,28 E., 4,000 ft., IX.1932, 1 ♀ (R. H. Taylor). Biyo Dia, 40 miles N. of Hargeisa, 17.IV.1949, 1 ♀. Hargeisa, 25.V.1946, 1 ♀. 2 ♂♂. Tug Garise, 6.IV.1949, 1 ♀ (K. M. Guichard). Faroweina, 09 N., 43,40 E., II.1947, 1 ♀. Horo Hadle, 09,52 N., 44,02 E., I.1947, 2 ♂♂. Herod Hills, 09,42 N., 44,02 E., I.1947, 1 ♀. Dan Hudban Hills, 08,15 N., 47,15 E., 24.X.1947, 1 ♀ (W. H. Wood). Dabruk, 22.I.1949, 1 ♂ 2 ♀♀ (P. R. Stephenson). Between Ainabo and Las Anod, 8.X.1947, 1 ♂. Jire Valley, 3.XII.1947, 1 ♀ (Z. V. Waloff). Borama, III.1948, 1 ♂ (B. P. Uvarov) (*B. M.*).

ITAL. SOMALIA: Belet Wen, 28.IX.1947, 2 ♂♂, 2 ♀♀. Mijertein, Domo, 5.XI.1947, 1 ♀, 25 m. N. of Galkayu, 22.X.1947, 1 ♂ (Z. V. Waloff) (*B. M.*).

KENYA: Rahmu, Mandera Dist., 03°55′ N., 41°14′ E., 19.VI.1944, 1 ♀; 00°53′ N., 39°33′ E., 12.VI.1947, 2 ♀♀. Samburu, 00°3′ N., 35°55′ E., 28.IX.1945, 1 ♀; 01°03′ N., 36°55′ E., 29.IX.1945, 1 ♀, 2 ♂♂. Birahi Ku, Mandera Dist., 03°97′ N., 41°38′ E., 8.XII.1944, 1 ♀. Tanju, Isiolo Dist., 01°40 N., 39°05′ E., 22.I.44, 1 ♀. Wajir, N. F. D., 12.VI.47, 1 ♂. El Katulo, Wajir Dist., 02°28′ N., 40°28′ E., 6.VI.44, 1 ♂. Damassa, Mandera Dist., 03°09′ N., 41°20′ E., 27.V.47, 1 ♂; 00°40′ N., 37°40′ E., 21.X.47, 1 ♂ (D. K. Kevan). Mt. Kulal, 02°35′ N., 36°55′ E., 5,500-6.500 ft., X.1947, 1 ♂ (T. C. Williams). Lan Boggal, Wajir Dist., 01°17′ N., 39°53′ E., V.1947, 1 ♂, 1 ♀ (G. Mackintosh). Olagarsaile, VIII.1944, 1 ♀ (Dr. Leakey). Olagarsaile, VII.1947, 1 ♂ (J. G. Williams) (*B. M.*). Malindi Dist., 23.IX.1940, 2 ♂♂ (G. W. Jeffery) (*C. M.*).

TANGANYIKA TERRITORY: Mkomasi Station, semi-desert, 60 m. W. of Amani, VI-VII-XI.1937, 5 ♂♂, 5 ♀♀. S. Shore of Lake Kenworthy, 18.IV.1936, 1 ♀. Old Shinyanga, III-XI.1949, 3 ♂♂, 10 ♀♀. Lohumbo, Old Shinyanga Dist., 28.XII.1948, 1 ♂, 1 ♀. Tinde, IV-V.1945, 16 ♂♂, 16 ♀♀; 25.X.1948, 8 ♂♂, 6 ♀♀ (E. Burtt) (*B. M.*).

Truxalis viridifasciata Krauss

(Figs. 125, 126.)

1902. *Acrida* (*Acridella*) *viridifasciata* Krauss, Anz. Akad. Wiss. Wien., 7: 4.

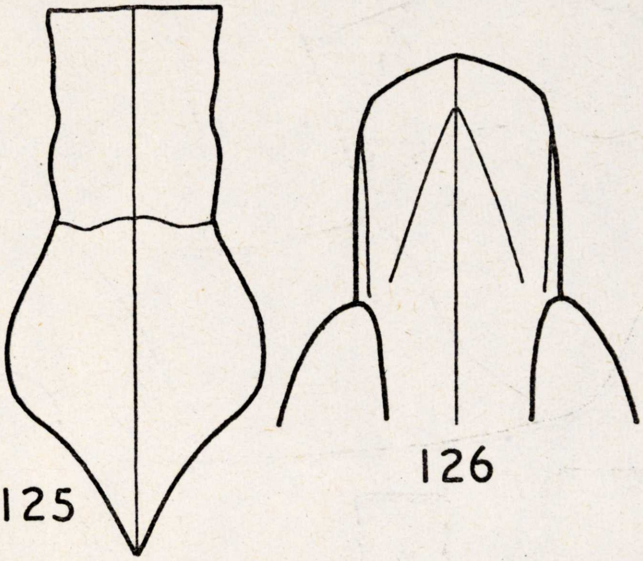
1907. *Acrida viridifasciata* Krauss, Denksch. Mat.-Nat. Kl. Akad. Wiss. Wien, 71: 18, Pl. II, fig. 1, 1.^{a}

♀ (Type. Redescription.). Body moderately slender.

Antenna rather shorter than head and pronotum together, moderately widened and gradually narrowed to the apex, all segments well divided. Head moderately elongated, but slender.

Fastigium of vertex sloping forwards, with straight, slightly excurved lateral margins and broadly obstusangulate apex.

Pronotum weakly saddle-shaped; the lateral carina, in prozona, sinuate, in metazona strongly excurved and divergent; the posterior margin of metazona sharply acutangulate and pointed; ratio of metazona to prozona — 1.6. Mesosternal interspace as long as broad with weakly incurved lateral sides. Metasternal interspace slightly broader than long.



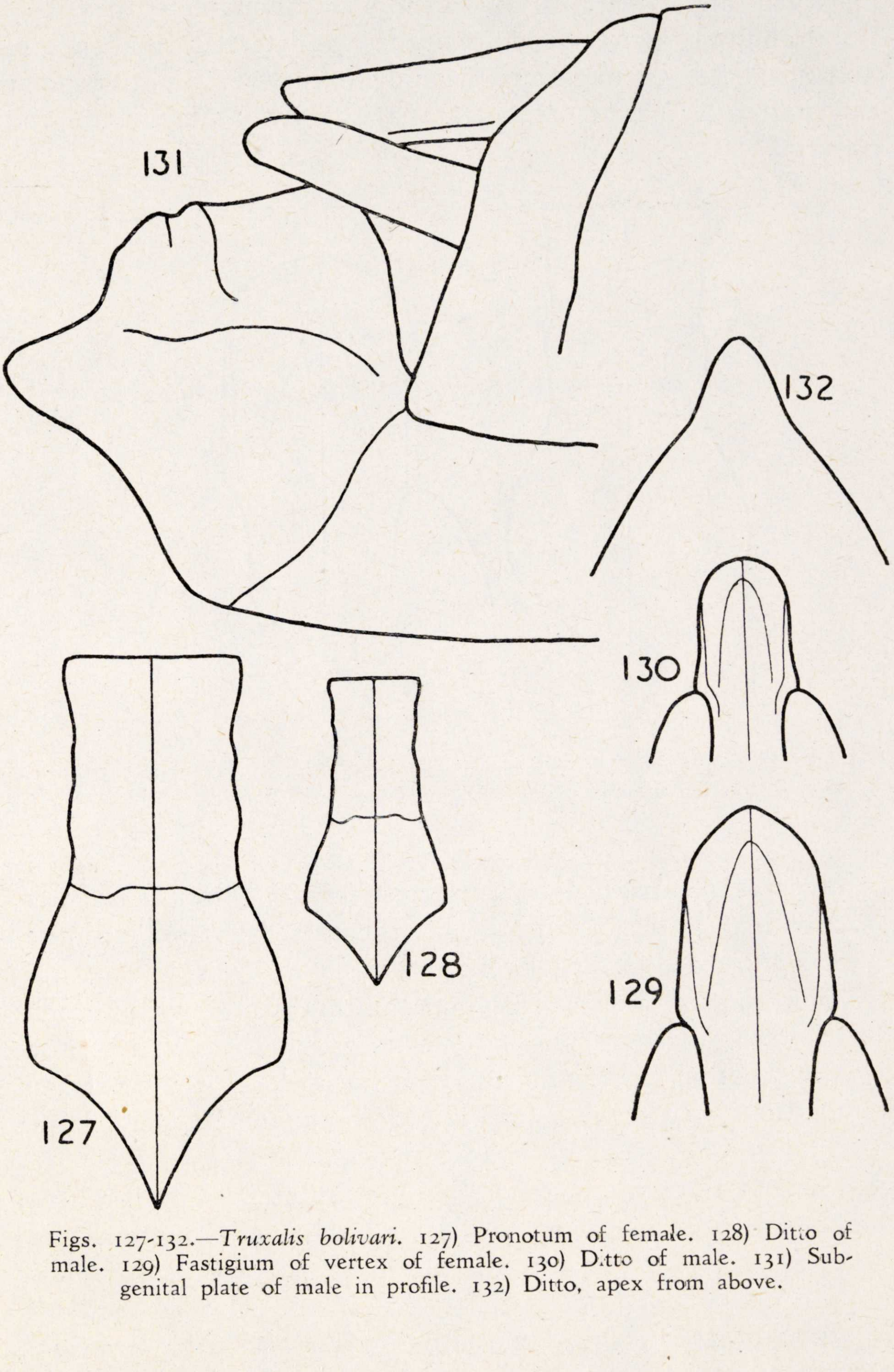
Figs. 125-126.—*Truxalis viridifasciata*, 125) Pronotum of female. 126) Fastigium of vertex of female.

Elytron well produced beyond the hind knee, with straight anterior margin and acute apex; ratio of length to width — 9.

Hind femur projecting beyond the apex of the abdomen. Hind knee with short, acute lateral lobes, upper lobe broader than lower one. Arolium small and narrow.

General colouration greenish; on the lateral sides of head, lateral and median carina and lateral lobe of pronotum with yellowish stripes. Elytron with pattern of the type 5; basal disc of wing light pink. The tessellate pattern weak, brownish.

Length of body 52; frons 12.5; pronotum 9; elytron 45; hind femur 28.



Figs. 127-132.—*Truxalis bolivari.* 127) Pronotum of female. 128) Ditto of male. 129) Fastigium of vertex of female. 130) Ditto of male. 131) Subgenital plate of male in profile. 132) Ditto, apex from above.

SOCOTRA: II.1899, 1 ♀ (Type preserved in Vienna Museum) (O. Simony).

By reason of the sinuate carinae of pronotum this species is nearer to the *T. consp. somalia* Burr, but differs by the less robust body, shorter head, form of fastigium of vertex and narrower and more acute elytron. Male unknown.

Truxalis bolivari sp. n.

(Figs. 127-132, 211.)

♀ (Type). Medium size and slender.

Antenna shorter than head and pronotum together, moderately widened and gradually narrowed to the apex, 3rd and 4th segments incompletely divided. Head moderately slender. Fastigium of vertex with straight lateral sides and parabolic, slightly obtusangulate apex.

Pronotum slightly saddle-shaped; the lateral carina, in prozona, sinuate, divergent forwards; in metazona excurved and divergent; posterior margin of metazona strongly acutangulate and pointed, with incurved sides; ratio of metazona to prozona — 1.4. Mesosternal interspace slightly longer than broad with weakly incurved sides and feebly broadened apex. Metasternal interspace as long as broad.

Elytron little produced beyond the hind knee, its anterior margin almost straight, in the apical part oblique and weakly narrowed; apex obtuse; ratio of length to width — 8.7.

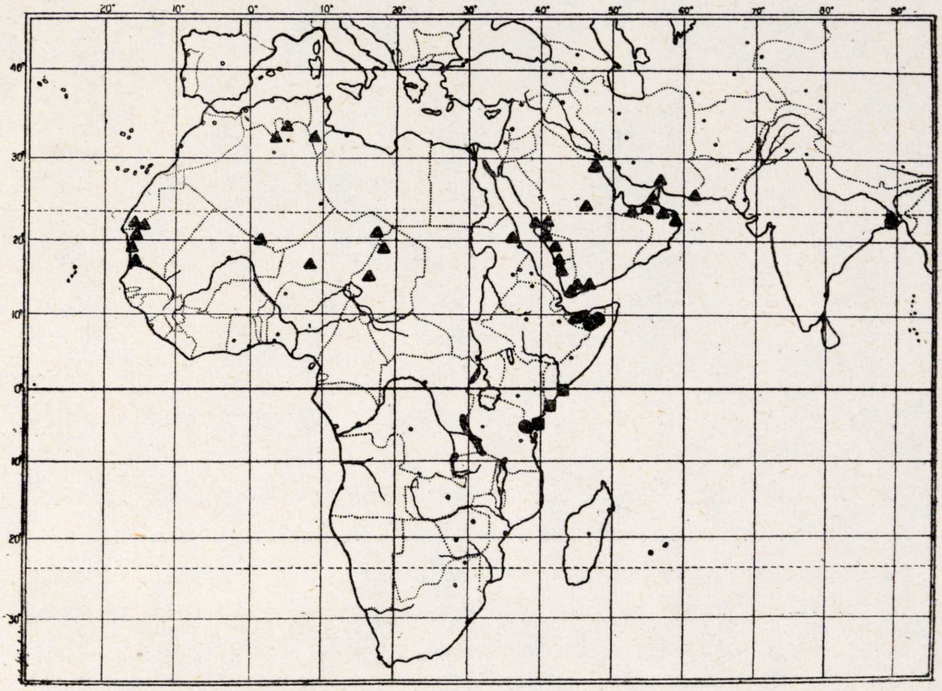
Hind femur well produced beyond the apex of the abdomen. Hind knee with short acute lateral lobes; upper lobe shorter and broader than lower one. Arolium moderately narrow half as long as claw.

General colouration green. Apical part of antenna light yellow; lateral carina of pronotum light yellow with a dark narrow stripe along the internal side; elytron with pattern of the type 4, 5; basal disc of wing bright red, apical portion weakly greenish; the tessellate pattern broad, brownish; hind femur above, with three indistinct diffuse spots.

♂ (Paratype). Medium size and slender.

Antenna as long as head and pronotum together, moderately widened, 3rd and 4th basal segments incompletely divided. Head moderately slender. Fastigium of vertex with incurved lateral sides and parabolic apex.

Pronotum feebly saddle-shaped; the lateral carina, in prozona, incurved and weakly sinuate, in metazona feebly excurved and divergent; posterior margin of metazona strongly acutangulate with incurved sides; ratio of metazona to prozona — 1.2. Mesosternal interspace half as long again as broad, its lateral sides feebly incurved, apex weakly broadened. Metasternal interspace twice as long as broad.



Map. 8.—Distribution of species: ▲ — *Truxalis procera*. ● — *T. rubripennis*. ■ — *T. bolivari*.

Elytron little produced beyond the high knee, its anterior margin almost straight in the apical part weakly oblique and feebly narrowed, with obtuse, almost rounded apex; ratio of length to width — 7.5.

Hind femur well produced beyond the apex of the abdomen. Hind knee with short acute lateral lobes; upper lobe shorter and broader than lower one. Arolium moderately narrow more than half the length of claw.

Subgenital plate, in profile, short, with projecting obtuse apex and projecting upper portion; from above apex is elongated and obtuse. Supraanal plate comparatively short.

General colouration greenish or brownish. Apical part of antenna light yellow. Lateral carina of pronotum light yellow, with a dark narrow stripe along the internal side; elytron with the pattern of the type 4; basal disc of wing light yellow, remaining part of membrane of wing colourless; tessellate pattern brownish. Hind femur above, with the three indistinct diffused spots. Hind tibia with light ring in the basal part.

Length of body ♂ 39-41, ♀ 62-67; frons ♂ 9.5-10, ♀ 13-14.5; pronotum ♂ 6-6.5, ♀ 10-11; elytron ♂ 30-31, ♀ 51-52; hind femur ♂, 24-25. ♀ 37.5-41.

KENYA COLONY: Mombasa, Watamu, 1.IX.1940, 1 ♀ (Type), 3 ♂♂ (G. W. Jeffery). Mombasa, IV.1941, 2 ♀♀, 1 ♂ (J. R. Hudson). Lower Tana, Sabaki, IV-V.1932, 3 ♀♀ (Turner-McArthur). Mombasa, 3-4.VII.1939, 2 ♂♂ (E. Burtt). Kiunga, Lamu, Coast Bush, XI.1945, 1 ♂, 1 ♀ (J. Adamson). Gasi Mombasa, V.1944, 1 ♂ (E. Opiko) (*B. M.*).

This species is related to the *T. procera* group of species and differs from other species of the group by form of lateral carina of pronotum, fastigium of vertex, colouration of wing and by general habitus. It is known from the coastal zone of Kenya only.

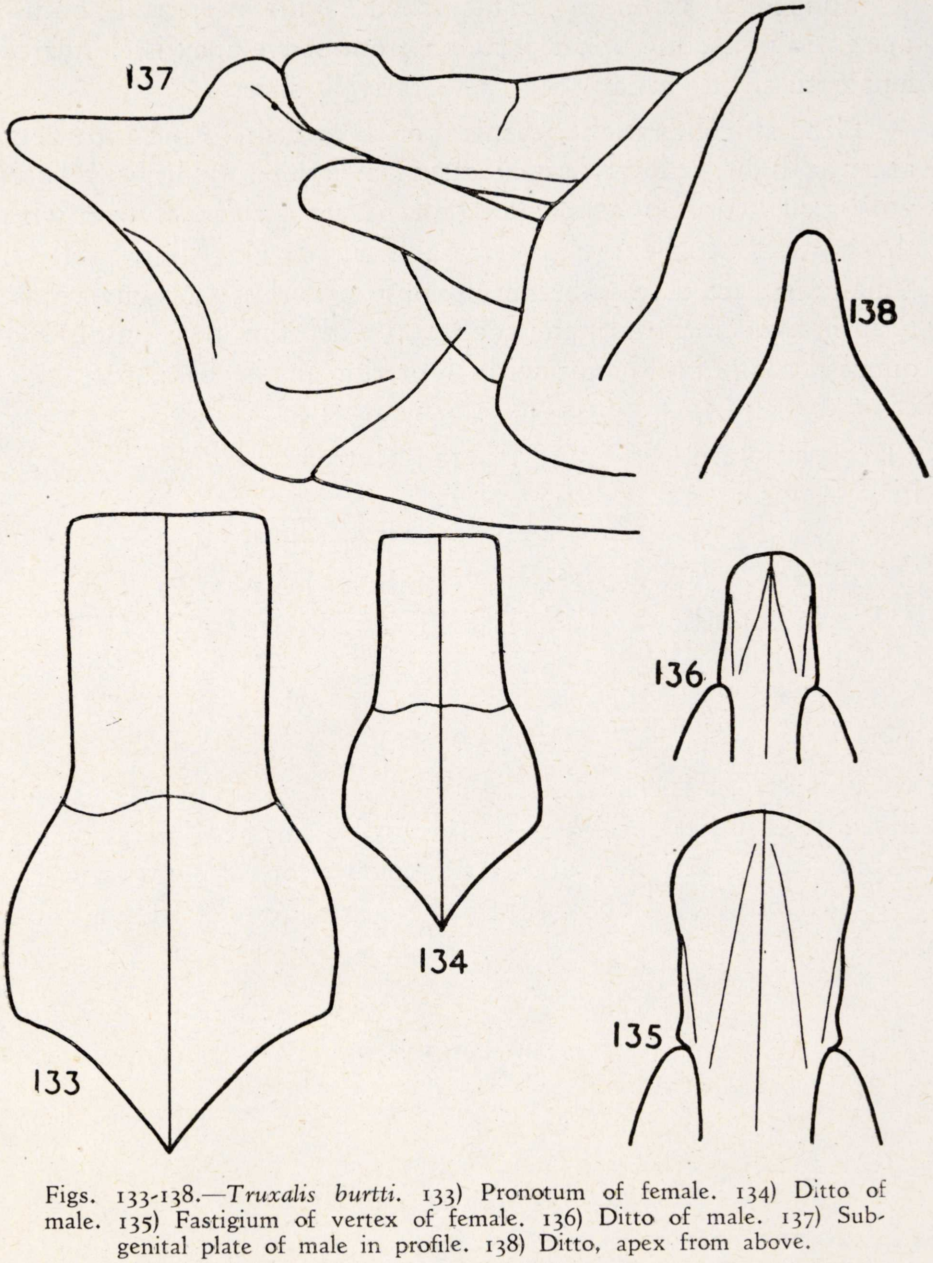
Truxalis burtti sp. n.

(Figs. 133-138, 214.)

♀ (Type). Moderately large and robust.

Antenna shorter than head and pronotum together, moderately broadened, the 3rd, 4th and 5th basal segments incompletely divided. Fastigium of vertex with feebly incurved or sinuate sides, slightly widened to the apex, which is broadly rounded.

Pronotum strongly saddle-shaped; lateral carina, in prozona, almost straight and parallel sometimes slightly sinuate; in metazona strongly excurved and divergent; posterior margin of metazona strongly acutangulate, with incurved sides and pointed apex. Mesosternal interspace elongated, slightly constricted in



Figs. 133-138.—*Truxalis burtti*. 133) Pronotum of female. 134) Ditto of male. 135) Fastigium of vertex of female. 136) Ditto of male. 137) Subgenital plate of male in profile. 138) Ditto, apex from above.

the middle and widened to the apex. Metasternal interspace twice as long as broad.

Elytron well produced beyond the hind knee, its anterior margin slightly excurved, apex narrowed and acute; ratio of length to width — 9.

Hind femur little produced beyond the apex of the abdomen. Hind knee with short lateral lobes, lower lobe more acute than upper one. Arolium large and broad, two thirds the length of claw.

General colouration green, greenish-brown, yellow-brownish. Elytron with pattern of the type 5, 6 or uniformly green. Metanotum, first and second abdominal tergites sometimes dirty blue; basal disc of wing purplish diffusing to light violet, remaining portion of wing colourless or slightly yellowish; the tessellate pattern broad, brownish.

♂ (Paratype). Moderately large and robust.

Antenna little shorter than head and pronotum together, moderately broadened, the 3rd and 4th basal segments incompletely divided. Head moderately slender. Fastigium of vertex with straight lateral sides weakly convergent to the apex; apex very broadly rounded.

Pronotum saddle-shaped; the lateral carina, in prozona, almost straight and parallel; in metazona excurved and divergent; posterior margin of metazona acutangulate, with incurved sides and acute apex. Mesosternal interspace elongated, slightly constricted in the middle and widened to the apex. Metasternal interspace twice as long as broad.

Elytron broad, and well produced beyond the hind knee, its anterior margin weakly excurved, apex narrowed and acute. Ratio of length to width — 8.0.

Hind femur produced beyond the apex of the abdomen. Hind knee with short lateral lobes, lower lobe more acute than upper one. Arolium comparatively large and broad, two thirds the length of claw.

Subgenital plate in profile elongated and strongly acute; from above, strongly elongated, with obtuse apex. Supra-anal plate obtuse triangulate.

Colouration green or brownish. Lateral carina of pronotum with a dark stripe along the internal side. Elytron with pattern of the type 5; basal disc of wing yellowish-green, apical portion colourless; the tessellate pattern broad, brownish; apex sligthly infumate. Hind tibia with light ring in the basal portion. The two last abdominal tergites and supra-anal plate with dark spots.

Length of body ♂ 37-42, ♀ 64-68; frons ♂ 9-10.5, ♀ 13.5-14; pronotum ♂ 6-7.5, ♀ 10-12; elytron ♂ 31-38.5, ♀ 57-60; hind femur ♂ 22-26.5, ♀ 36-42.

This species was confused with *T. nasuta* L. but is differentiated clearly by the form of fastigium of vertex, carinae of pronotum, much larger arolium, and subgenital plate of male.

There are three principal varieties of this species, which gradually change from one to another.

1. Differs by more slender body, more slender pronotum and the very small and light spot on the basal disc of wing. Distributed in the northern part of the area (Map. 9): in Somaliland, Ethiopia and in Kenya where it gradually changes to the next variety.
2. (Typical). Body more robust, pronotum less slender, colouration of the basal disc of wing darker and the spot is larger. Distributed mostly in Tanganyika Territory and in its southern part gradually changes to the next variety.
3. Body still more robust in the typical form, pronotum about the same structure, but basal disc of wing differs strongly by being very dark and having the largest coloured portion. In some specimens, almost all the wing is darkened. This variety occurs in N. Rhodesia, Mozambique, and partly in Angola.

I do not give these forms subspecific significance because they pass too gradually from one to another and perhaps depend on ecological conditions only.

BRITISH SOMALILAND: El Humah, Burao Dist., 09,23 N., 45,10 E., X.1935, 1 ♀. Las Anod, 08,24 N., 47,23 E., 21.X. 1935, 1 ♂; 16.XI.1936, 1 ♂ (E. Peck). Mijertein Domo, 07.53 N., 46,51 E., 4-5.XI-1947, 2 ♂♂ (Z. V. Waloff). Haud, 4,000 ft., 08,31 N., 45,28 E., IX. 1923, 2 ♂♂ (R. H. Taylor). Galale, near Berbera, 25.X.1936, 1 ♂ (E. Peck) (*B. M.*).

ETHIOPIA: Dobba, 26.I.1902, 1 ♀ (Degen). Geldi, 30.VIII. 1939, 1 ♀ (A. Bellehu) (*B. M.*).

KENYA: Wonte Goda, Mandera Dist., 02,59 N., 42,03 E., 14.XII.1944, 2 ♀♀. Damassa, Mandera Dist., 03,09 N., 41,20 E., 24.V.1947, 2 ♀♀. Morti, Isiolo Dist., 01,05 N., 38,40 E., 5.VI. 1946, 1 ♂. El Katubo, Wajir Dist., 02,28 N., 40,38 E., 16.VI. 1944, 2 ♀♀. 10 m. E. of Turbo, Moyale Dist., 03,20 N., 38,28 E., 14.VI.1946, 1 ♀. Tanju, Isiolo Dist., 01,40 N., 39,05 E., 23.I.1944, 1 ♂. Dida Galgalla, Marsabit Dist., 03,05 N., 38,13 E., 29.II.1944, 1 ♂ (D. K. Kevan). Garissa Rd., E. of Nairobi, X.1940, 1 ♂ (A. R. Melville). Turkana, Lodwar, 03,00 N., 35,30 E., VI.1934, 2 ♀♀. Isiolo, 01,05 N., 38,40 E., 1 ♀ (D. R. Buxton) (*B. M.*). Chyulu Hills, 02,50 N., 37,50 E., VI.1938, 1 ♀. Stony Athi, 01,40 S., 37,00 E., XII.1940, 3 ♂♂, 1 ♀ (*C. Mus.*). Small swamp near Kibwezi (02,22 S., 37,54 E.), 2,900 ft., 12.VI.1947, 3 ♂♂, 10 ♀♀ (D. K. Kevan & R. Babault) (*B. M.*).

TANGANYIKA TERRITORY: Old Shinyanga, 03,45 S., 33,15 E., I-III-XI.1935, 1 ♂, 4 ♀♀; VI-XII.1936, 2 ♂♂, 2 ♀♀; I-IV.1937, 3 ♀♀; III-XI.1948, 19 ♂♂, 17 ♀♀ (including type). Lohumbo, Shinyanga Dist., 27.XII.1948, 1 ♀. Shinyanga, 30.III.1935, 1 ♀. Mkomasi Station, 60 m. W. of Amani, 05,05 S., 38,40 E. (Semi-desert), 20.VI.1937, 1 ♂, 1 ♀. S. shore of Lake Kenworthy 04,00 S., 34,10 E., 18.IV.1936, 1 ♀. Tinde, 03,50 S., 33,15 E., V-XII.1945, 3 ♂♂, 9 ♀♀ (E. D. Burtt). Kizumbi, 07,50 S., 30,50 E., XI.1925, 1 ♀ (N. C. E. Miller). L. Rukwa, 08,20 S., 32,40 E. Milepa Plain, 1949, 4 ♂♂, 7 ♀♀ (G. Barnett). L. Rukwa, North Plain, 24.IV.1949, 2 ♂♂, 1 ♀ (D. V. Fitzgerald) (*B. M.*).

N. RHODESIA: Feira, 15,30 S., 31,20 E., 16.VI.1911, 1 ♀ (F. V. Bruce) (*B. M.*).

MOZAMBIQUE: Env. De Chemba, Inhacoro, 22.V.1928, 1 ♀. Nova Choupanga, V. 1928, 1 ♀ (P. Lesne) (*P. M.*).

ANGOLA: Lobito, 12,20 S., 13,34 E., 1.V.1934, 1 ♀ (K. Jordan) (*B. M.*). Duque Bragança, 1 ♀ (*M. M.*).

S. AFRICA: Rustenburg, 25,40 N., 27,20 E., 1 ♂ (*V. M.*).

Truxalis nasuta (Linné).

(Figs. 139-149, 217.)

1758. *Gryllus* (*Acrida*) *nasutus* Linné, Syst. Nat. (ed. X): 427, no. 11.
1775. *Truxalis nasutus* Fabricius, Syst. Ent.: 279.
1830. *Truxalis obsoleta*, ♀, Klug, Symb. Phys., no. 3, pl. 16, fig. 1.
1830. *Truxalis scalaris*, ♀, Klug, Symb. Phys., no. 5, pl. 15, figs. 3, 4.
1830. *Truxalis variabilis*, ♂, Klug, Symb. Phys., no. 8, pl. 17, fig. 5.
1839. *Truxalis unguiculata* Rambur, Faun. Andal., 2: 72, no. 1.
1853. *Truxalis klugii* (Partim) Fieber, Lotos, 3: 97, no. 1.
1873. *Acrida nasuta* Stål, Rec. Orth., 1: 99, no. 10.
1893. *Tryxalis* (*Acridella*) *unguiculata* I. Bolívar, Feuil. Jeun. Nat., 23: 63, 64, no. 11.
1910. *Acridella nasuta* (Partim) Kirby, Cat. Orth., 3: 95, no. 3.
1941. *Truxalis nasutus* Radclyffe-Roberts, Trans. Amer. Ent. Soc., 67: 21.
1943. *Acridella nasuta* Uvarov, Proc. Linn. Soc., 155 sess.: 21.

♀. Antenna as long as head and pronotum together moderately widened. The 3rd, 4th and 5th basal segments incompletely divided. Sides of fastigium of vertex parallel, or slightly convergent to the apex, which is broadly rounded.

Pronotum saddle-shaped; the lateral carinae in prozona, parallel, straight or slightly incurved; in metazona excurved and divergent; posterior margin of metazona straight or acutangulate, with more or less incurved sides. Ratio of metazona to prozona 1-1.8. Mesosternal interspace elongated with incurved lateral margins and broadened apex. Metasternal interspace as long as broad or slightly longer.

Elytron projecting well beyond the hind knee; its anterior margin slightly excurved, oblique to the apex, and narrowed, apex weakly obtuse. Ratio of length to width — 8.3-8.9.

Hind femur well produced beyond the apex of the abdomen; hind knee with short lateral lobes; lower lobe is longer and more acute than upper one. Arolium very small, four times shorter than the length of claw.

General colouration greenish, yellowish or yellow-brownish; elytron with the characteristic pattern of the type 5. Metanotum, first and partly second, sometimes third abdominal tergites bluish. Basal disc of wing and its internal part dark pink with slightly violettish shade, the tessellate pattern slight; apical part colourless or weakly greenish, pellucid and lustrous.

♂. Of medium size.

Antenna as long as head and pronotum together. The 3rd and 4th basal segments incompletely divided. Fastigium of vertex narrowed to the apex, which is rounded.

Pronotum saddle-shaped; the lateral carinae in prozona incurved, in metazona excurved and divergent; posterior margin of metazona acutangulate, with more or less incurved sides; ratio of metazona to prozona — 1.2-1.3. Mesosternal interspace elongated, with incurved lateral margins and widened apex. Metasternal interspace sligthly longer than broad.

Elytron projecting well beyond the hind knee, ratio of length to width — 8.2-8.7, its anterior margin excurved, oblique to the apex; apical part narrow, slightly obtuse at the apex.

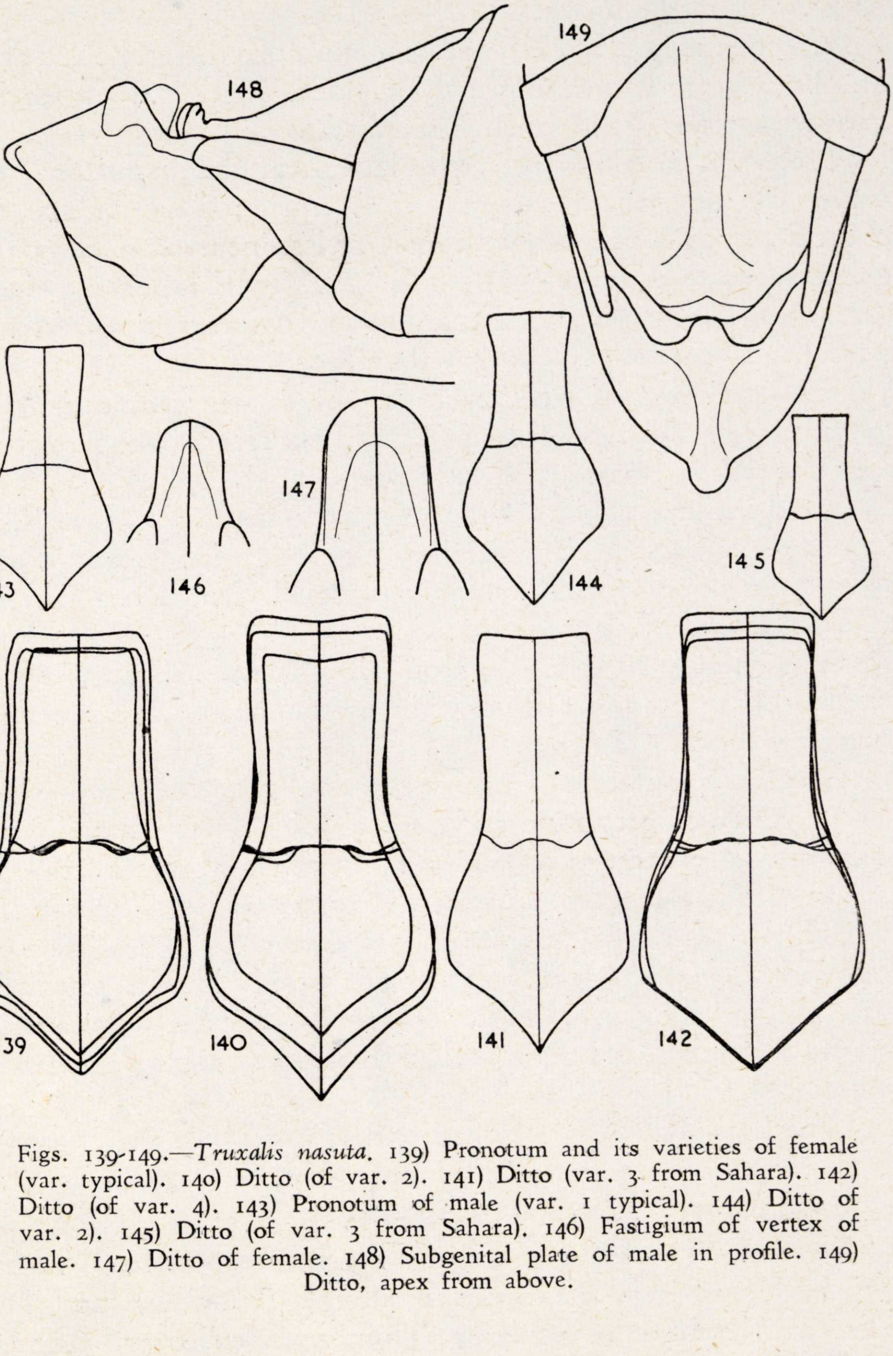
Hind femur produced beyond the apex of the abdomen. The hind knee with short lateral lobes, lower lobe longer and more acute than upper one. Arolium very small, four times shorter than the length of claw.

Subgenital plate short subconical, its external margin, in profile, concave; apex well projecting; from above with rounded apical projection.

General colouration green, yellowish or yellow-brownish. Lateral carina of pronotum and parallel folds on the lateral lobe pale; disc of pronotum with two dark stripes along the lateral carinae or without them. Elytron with more or less distinct pattern of the type 5, which sometimes disappears; basal disc of wing light yellowish-green, internal side weakly bluish; tessellate pattern light brownish. Three or four of the last abdominal tergites and supra-anal plate with diffused dark spots or without them.

Length of body ♂ 40-49, ♀ 62-78; frons ♂ 9-11.3, ♀ 15.5-18.5; pronotum ♂ 6-7.7, ♀ 11.3-12.9; elytron ♂ 35-41, ♀ 58-66; hind femur ♂ 23.5-26.5, ♀ 37.5-45.

Truxalis nasuta was described by Linné from Africa. Later Stål in his revision of species of Linné, Thunberg and De Geer, on the basis of studying Thunberg's collection, quoted for *T. nasuta* «Patria Algeria, Tunisia». The typical locality of this species, most probably, appears to be North Algeria. Re-



Figs. 139-149.—*Truxalis nasuta*. 139) Pronotum and its varieties of female (var. typical). 140) Ditto (of var. 2). 141) Ditto (var. 3 from Sahara). 142) Ditto (of var. 4). 143) Pronotum of male (var. 1 typical). 144) Ditto of var. 2). 145) Ditto (of var. 3 from Sahara). 146) Fastigium of vertex of male. 147) Ditto of female. 148) Subgenital plate of male in profile. 149) Ditto, apex from above.

description of this species is made on the specimen from North Algeria.

T. nasuta L. is distributed on the Canary Islands, South Europe, islands of the Mediterranean Sea, North Africa and Palestine (See Map. 9). All old records regarding *T. nasuta* from other countries refer to other species.

T. nasuta is a very variable species and even with specimens from the same locality and the same date there is an enormous range of variation (see Figs. 139-145).

There are the following varieties of *Truxalis nasuta*.

1. (Typical.) Moderate size of body, lateral carina of pronotum in prozona slightly incurved, in metazona moderately excurved, posterior margin of metazona acutangulate, but not pointed, with slightly incurved sides (Fig. 139).

Distributed in North-Western Africa, Europe and isles of the Mediterranean.

2. (= *Truxalis scalaris* Klug). Differs by bluish or purplish colouration of basal disc of wing in the females (but there are all intermediate to typical forms); size of body larger than in typical form; lateral carina of pronotum in prozona slightly incurved, in metazona strongly excurved; posterior angle of metazona strongly elongated and mostly pointed. (Fig. 140.)

Distributed in the Siwa oasis (see Uvarov, 1943) and Suez.

3. Differs by very slender body; incurved in prozona and strongly excurved in metazona lateral carina. Posterior angle of metazona acute (Fig. 141). Basal disc of wing in female light coloured dirty pinkish.

Distributed in the southern part of the area in Sahara.

4. (= *Truxalis obsoleta* Klug.) Differs by the large size, pale general colouration and small coloured spot of the basal disc of wing in the females, which is pinkish to brownish, sometimes purplish. Pronotum comparatively robust; posterior angle of metazona approaches to the right or obtuse with obtuse apex. (Fig. 142.)

Distributed in Palestine.

All these variations fluctuate strongly and there are all intermediate forms between them. Taxonomic value of these variations remains indefinite.

CANARY ISLANDS: Gran Canaria, 1.V.1895, 1 ♀ (*B. M.*). Canarias, 1 ♀ (Calderón) (*M. M.*). Gr. Canaria, Ginamar, 1903, 1 ♀ (P. Lesne) (*P. M.*).

SPAIN: P. de Greda, 22.IX.1935, 1 ♂. P. de Torrevieja, 21.IX.1935, 2 ♀♀ (M. Burr). Granada, 19.VI.1901, 1 ♀ (*B. M.*). Málaga, 1 ♂, 3 ♀♀ (Ed. Pictet) (*Geneva M.*). Málaga, 2 ♂♂, 1 ♀ (E. Gros). Málaga, 1 ♀ (E. Marvier). San Fernando, Cádiz, 1 ♂, 1 ♀ (A. Benítez). Barajas, Madrid, VI.1945, 1 ♂, 1 ♀ (Abajo). Madrid, 1 ♀ (C. Bolívar). Brunete, Prov. Madrid, VI-VII.1938, 1 ♂, 1 ♀ (E. Morales). Torrecilla, Lorca, Murcia, VII.1932, 1 ♀ (J. Espín). Almería, 1 ♀ (J. Gómez-Menor). La Cava, Tarragona, VII.1926, 1 ♀ (J. Gil). Valencia, Alcántara, 1 ♂ (E. Brenil) (*M. M.*). Granada, 1 ♂, 1 ♀ (*W. M.*). Madrid, 1 ♀ (J. Abajo). Brunete, Prov. Madrid, 20.VI.1938, 1 ♂, 1 ♀ (E. Morales). Valencia, 1 ♀ (*W. C.*). Prov. Granada, Estepona, 19.VI, 1 ♂, 1 ♀. Málaga, Marbella, 18.VI, 1 ♀ (O. Lundblad) (*St. M.*). Aguilas, Murcia, 1 ♂, 1 ♀ (Weiers). Madrid, 1 ♀ (Bolívar). Portimao, Algarve, 14.V.1910, 1 ♀ (Jordan) (*O. M.*).

SARDINIA: Cagliari, V. 1873, 1 ♀ (R. Gestro) (*Genoa M.*). 14.VI.1947, 1 ♀ (F. B. Boselli).

SICILY: Alcano, 1 ♂ (F. Wagner) (*W. C.*). Biccoca, 1 ♀. «Sicile», 2 ♂♂, 1 ♀. Agnone, 1 ♂. Marais de Lantini, 1 ♂. Motta, 1 ♂ (*Geneva M.*). Sinecto, 25.V, 1 ♂. Agnone Station, 1 ♀ (*W. M.*). «Sicilia», 1914, 1 ♀. Sirakus, 21.V.1914, 1 ♂. «Sicilia», 1 ♂ (W. Trautman) (*St. M.*).

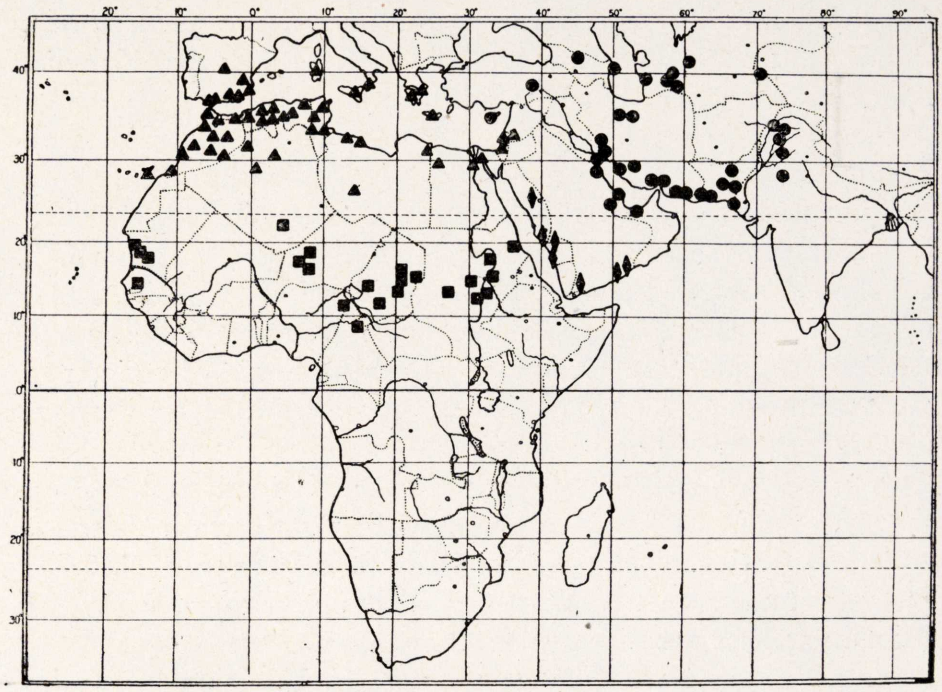
ITALY: Calabria, Capo Spartivento, 27.VI.1929, 1 ♀ (C. Confalonieri) (*Genoa M.*).

GREECE: Athens, 2.VI.1866, 1 ♀ (Merlin Coll.) (*B. M.*). Moree, 1833, 1 ♂ (Brullé) (*P. M.*).

CRETE: Sphakia, Frankocastelli, 25.V.1938, 1 ♀ (R. E. Gathorne-Hardy) (*B. M.*). St. Nicolo, V.1904, 2 ♀♀ (*W. M.*). «Crete», 1845, 1 ♀ (Raulin) (*P. M.*).

IFNI: Tilinın, VI.1934, 1 ♀ (F. Escalera) (*M. M.*).

MOROCCO: Rabat, V.1921, 1 ♀. Marrakesh, 4.VII.1927, 1 ♀. Great Atlas Mts., Tjoukar (about 30° N., 8° W.), 3,900 ft., VI.1936, 7 ♂♂, 4 ♀♀. Great Atlas Mts., Mouldirt, 3.360 ft., VI.1936, 1 ♀. Middle Atlas Mts., Azrou, 4,400 ft., VI.1936, 1 ♂ (K. H. Chapman & G. A. Bisset). Bou-Denib, 1 ♂ (Théry). Volubilis, 400 m., 1 ♂ (Alluaud) (*B. M.*). Fez, 25.V.1930, 1 ♀ (*St. M.*). Gr. Atlas, Goundafa (34,10 N., 05,03 W.), 1,200 m., 29.VI.1933, 1 ♀ (Zerny) (*W. M.*). Amismiz, 1 ♂, 1 ♀ (Escalera). Uad Lucus, Larashe, 1 ♀ (J. Gil Collado). Tanger, VI.1905, 1 ♂ 1 ♀. Xauen bajo (sp. Morocco), 1 ♀ (M. Escalera). Sidi Salem, Melilla, V.1930, 1 ♀. Segangan, Melilla, 1 ♀. Melilla, 7.IX.1930, 1 ♀; V.1930, 1 ♂ (B. Candel). Larache, 1 ♀ (A. Nombela). Lixus. El Tchemmich, VI. 1923, 1 ♀ (J. Gil) (*M. M.*). Tarfaia, (28° N., 13° W.), 1 ♂ (A. Théry). Agadir, IV.1939, 1 ♀ (L. Berland). Gt. Atlas. Sinis. S. Talekjount, 800 m., 7.V.1927, 1 ♀. Gr. Atlas, Tinmel, Goundafa, 17-24.V. 1927, 1 ♀. Goundafa, Tagubndaft, 1,800-2,100 m., 16.V.1927, 1 ♂ Tenfecht, Takeljount, 1,000-1,200 m., IV-VI.1927, 1 ♂ (Le Cerf & Talbot). Dart Goundafa, V.1914, 1 ♂ (P. Polary). Tanger, 1 ♀ (Goudot) (*P. M.*). Agadir, 1 ♂ (Escalera) (*M. M.*).



Map. 9.—Distribution of species: ▲ — *Truxalis nasuta.* ■ — *T. johnstoni.* ● — *T. eximia.* ◆ — *T. philbyi.*

ALGERIA: Biscra, 20.VI.1934, 2 ♂♂. Hassi Bahbah, (35,10 N., 03,00 E.), X.1938, 1 ♀. Boghari, 28.IX.1937, 1 ♂, 1 ♀. Bou-Saada, 18.VI.1934, 1 ♀ (M. N. Korsakoff). Mascara, 1922, 3 ♂♂, 3 ♀♀ (A. Cros). Hamman-es-Salahia, 35 m. W. of Biscra, 12.V.1903, 1 ♀ (Waslingham). Ain Sefra, S. Oran, 1.V.1913, 1 ♂ (Rothschild) (*B. M.*). Oran, 3 ♀♀. Algerie, 1 ♀ (*Geneva M.*). Oran, VI, 1 ♂, 1 ♀. Biscra, 1 ♂, 1 ♀ (*V. M.*). Boyen, Kabylia, 1 ♀. Ain Sefra, 1 ♀. Oran, 1 ♀ (*M. M.*).

TERR. DU SUD: El Golea, 1934, 2 ♂♂, 1 ♀ (L. Chopard). Timimoun, X. 1937, 3 ♂♂, 4 ♀♀ (M. Volkonsky) (*P. M.*). El Golea, 20.V.1912, 1 ♂, 1 ♀ (Hartert & Hilg) (*B. M.*).

TUNISIA: Near Sfax, III.1904, 1 ♀ (de Boerio). Sfax, 18.V. 1922, 1 ♀. Gafsa, 15.V.1917, 2 ♀♀ (*B. M.*). «Tunisi», 1882, 1 ♂ (G. & L. Doria) (*Genoa. M.*). Maxnassy, 1929, 6 ♂♂, 2 ♀♀ (C. Dumont). Feriana, X.1894, 1 ♀ (Roben). Sfax, VI.1922, 1 ♂ (G. Babault). El Aiaicha, 3.IV.1884, 1 ♂ (*P. M.*). Kebili, 1932, 1 ♂, 1 ♀ (d'Hartet) (*M. C.*).

TRIPOLITANIA: Misurata, 1913, 1 ♂; XI.1912, 1 ♀. Homs, 1913, 3 ♀♀ (A. Andreini). Tripoli, 1928, 1 ♀. Tripoli, V. 1926, 1 ♀ (F. Invrea) (*Genoa. M.*). Castel Benito, 2.V.1946, 1 ♂. Coast W. of Tripoli, 27.III.1946, 1 ♂. Nr. Naint, 150 m. S. W. of Tripoli, 24.IV.1946, 1 ♂ (E. S. Brown) (*B. M.*).

CYRENAICA: Bardia, IV.1927, 1 ♂ (C. Confalonieri). Golfo di Bomba, VII.1927, 1 ♀ (R. N. Magnaghi) (*Genoa M.*). Dernah, VIII.1906, 2 ♀♀ (*V. M.*).

LIBYA: Fezzan, Murzuk, 16.VIII.1933, 2 ♀♀; VIII.1931, 1 ♀ (E. Zavattari). Gat. Fezzan, X. 1932, 1 ♀ (Cipriani) (*Genoa. M.*).

EGYPT: Marquet, 3 ♂♂ (ex Borman's Coll.) (*O. M.*). Khairouan, VII.1883, 1 ♂. Ismailia, IV.1907, 1 ♂ (Ch. Alluaud) (*P. M.*). Ghizeh. III.1902, 1 ♂ (F. Morey), Siwa, IV-VII.1935, 10 ♂♂, 25 ♀♀ (Omer-Cooper) (*B. M.*). Suez, 1868, 2 ♀♀ (*P. M.*).

PALESTINE: Lake Hula, 10.V.1945, 1 ♂. Degania, 8.IV. 1945, 1 ♀ (R. A. Crosby). Roued nr. Tiberias, 2.VI.1945, 1 ♀ (*B. M.*).

SYRIA: Soueida, 21.VI.1945, 1 ♀ (F. Wells) (*B. M.*).

Truxalis eximia eximia Eich.

(Figs. 150-155, 218.)

1830. *Truxalis eximius* Eichwald, Zool. Spec., II, Vilnae, p. 239.
1910. *Acridella nasuta* (Partim) Kirby, Cat. Orth., 3: 95, no. 3.

♀. Antenna rather shorter than head and pronotum together. The 3rd, 4th and 5th basal segments incompletely divided. Fastigium of vertex with straight parallel sides and broadly rounded apex.

Pronotum saddle-shaped; lateral carinae in pronoza, straight, slightly divergent backwards, in metazona excurved and divergent, posterior angle of metazona obtuse, with straight sides. Ratio of metazona to prozona — 1.1. Mesosternal interspace elongated, with incurved lateral margins and broadened apex. Metasternal interspace as long as broad.

Elytron projecting well beyond the hind knee, ratio of length to width — 8.6, its anterior margin slightly excurved, slightly oblique to the apex, which is narrowed and obtuse.

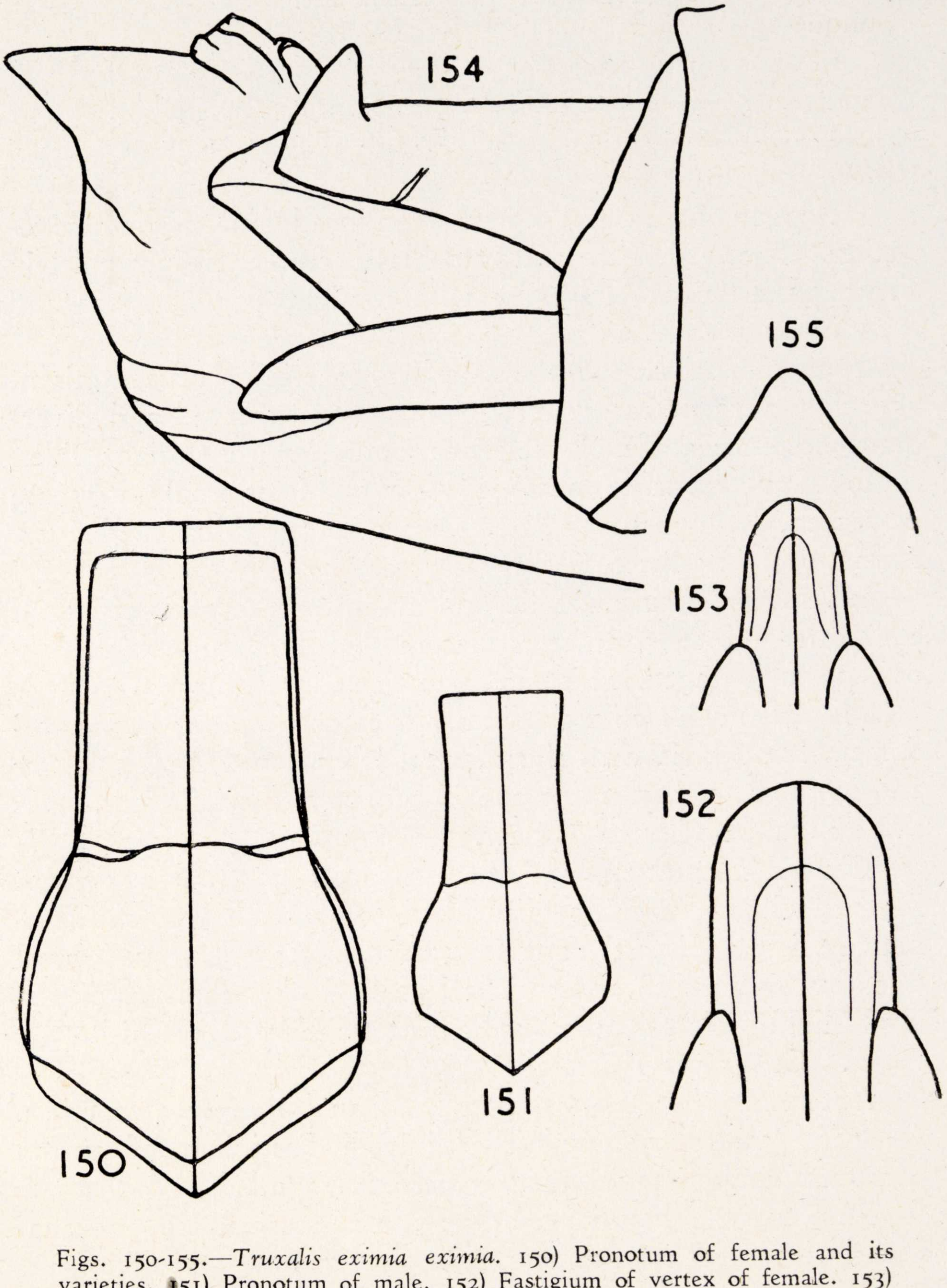
Hind femur reaches or sligthly exceeds the apex of the abdomen. Hind knee with short lateral lobes, lower lobe is longer and more acute than upper one. Arolium very small, four times shorter than the length of claw.

General colouration pale-ochraceous, or pale ochraceous-green. Elytron with more or less distinct pattern of the type 5. Metanotum, first and partly second abdominal tergites blue; basal disc of wing purplish, external part of basal disc gradually diffusing to light violettish, the tessellate pattern light, brownish.

♂. Comparatively small.

Antenna rather shorter than head and pronotum together. All basal segments completely divided. Fastigium of vertex narrowed to the apex, which is narrow, rounded.

Pronotum saddle-shaped; the lateral carinae in prozona, slightly incurved, in metazona strongly excurved and divergent. Posterior margin of metazona obtusangulate, with incurved sides. Ratio of metazona to prozona — 1. Mesosternal interspace elongated with incurved lateral margins and broadened apex. Metasternal interspace as long as broad.



Figs. 150-155.—*Truxalis eximia eximia.* 150) Pronotum of female and its varieties. 151) Pronotum of male. 152) Fastigium of vertex of female. 153) Ditto of male. 154) Subgenital plate of male in profile. 155) Ditto, apex from above.

Elytron projecting well beyond the hind knee, ratio of length to width — 8.9, its anterior margin slightly excurved, weakly oblique to the apex, apex narrowed and obtuse.

Hind femur little produced beyond the apex of the abdomen. Hind knee with short lateral lobes; lower lobe is longer and more acute than upper one. Arolium very small, four times shorter than the length of claw.

Subgenital plate short, its external margin, in profile, strongly concave, apex acute and projecting, from above, conical with incurved sides and obtuse apex.

General colouration pale-ochraceous. Lateral carinae of pronotum and parallel folds on the lateral lobe with pale stripes; disc of the pronotum with indistinct dark stripes along the lateral carinae. Elytron with distinct pattern of the type 5. Basal disc of wing light yellowish-green; the tessellate pattern light, brownish.

Length of body ♂ 45.5, ♀ 65-70; head ♂ 11, ♀ 15-16.5; pronotum ♂ 6.5, ♀ 10-11.5; elytron ♂ 36, ♀ 54-57; hind femur ♂ 25, ♀ 36-42.

CAUCASUS: Tiflis, 1 ♂ (*M. M.*).

RUSSIAN MIDDLE ASIA: Tukmenia, 2 ♀♀ (Reitter). Achal-Teke, 1 ♂ (Envoi Becker). Plain of Ferghana, 400-600 m., 1914, 1 ♂ (L. Gain) (*P. M.*). Krasnovodsk, 1 ♀; Ashabad, 1 ♀ (Coll. Br.-W.) (*V. M.*). Krasnovodsk, 1 ♀ (*St. M.*).

INDIA: Kelar, 6.IV.1949, 1 ♂ (Gurdas). Pasni, 8.III.1940, 1 ♀ (M. Singh). Hab River, 18.IX.1934, 1 ♀ (A. Qadir); Karachi, 24-30.X.1949, 3 ♂♂, 3 ♀♀. Bikaner, 1.XI.1949, 3 ♀♀ (B. P. Uvarov). Malakand, N. India, 1900, 1 ♀ (A. Begbie) (*B. M.*). Punjab, Lyallpur, 8.VII.1920, 1 ♀; 23.X.1922, 1 ♀; III.1923, 1 ♂ (at light). Rawalpindi, 14.VII.1922, 1 ♂. Sind, Virawah, 24.X.1933, 1 ♂ (D. R. Bathia). Punjab, Khewra, Salt Range, 24.IX.1930, 1 ♂, 4 ♀♀ (S. L. Hora & H. S. Pruti) (*I. M.*)

BALUCHISTAN: Ormarah, 25,00 N., 64,40 E., 1904, 1 ♀ (W. D. Gumming). Quetta, 1 ♀ (*B. M.*). Quetta, 17.II.1931, 1 ♂ (A. C. Sen) (*I. M.*). Korak (Peler), Kelat, 26,55 N., 65,47 E., 14.IX.1917, 1 ♀ (J. E. B. Hotson) (*B. M.*).

PERSIA: Mekran, Saidan, 3.V.1934, 1 ♂. Mekran, Hawaran, (Sorgi), 30.IV.1934, 1 ♂. N. of Ahwaz, Najl-Kel, 3.VIII.1932, 1 ♀ (S. V. P. Pill). Hurmudan Bala, 27,20 N., 56,18 E., 30.I. 1944, 1 ♀; 3.II.1944, 1 ♀. Near Tallobi, 27,22 N., 56,41 E., 31.I.1944, 1 ♂ (H. S. Darling) (*B. M.*). Bushire, 3 ♀♀ (Gumming) (*I. M.*). Abadan, III.1934, 1 ♂ Masjid-i-Sulaiman, near Ahwaz, V.1935, 1 ♀ (S. V. P. Pill). Bushire, 7-12.V.1927, 1 ♀ Bushire to Buruzdjun, 21.V.1927, 1 ♀. Shiraz to Kazerun, 22.V.1927, 1 ♀ (M. M. Siazov). Dashtiari, S. E. Iran, 30.IV.1949, 1 ♀ (Makoui) (*B. M.*). Garme Sar, 90 km. E. of Teheran, 5.VIII.1948, 3 ♂♂, 2 ♀♀ (P. Aellen) (*Bas. M.*). Kouh Sefid, Haut Karoum (about 32-33° N., 47-48° E.), VII.1899, 1 ♂, 1 ♀ (Escalera) (*M. M.*). Bushire, 2 ♂♂, 2 ♀♀ (*St. M.*).

IRAQ: Susa, IV.1899, 1 ♀ (Escalera) (*M. M.*).

ARABIA: Bahrein Inst., 10.X.1935, 1 ♀ (J. Fernández). Kuwait, 30.V.1934, 1 ♀ (V. Dickson). Trucial Oman, E-Kharran, III.-1950, 1 ♂, 2 ♀♀ (K. M. Guichard). Oman, Zarnuga Hasa, 25,05 N., 49,45 E., 1.III.1942, 1 ♀ (R. E. Cheesman) (*B. M.*).

TURKEY: Malatia, 1 ♂ (*M. M.*).

This species was described by Eichwald from Baku (Transcaucasia, Caspian Coast). It is nearest to *T. nasuta* and to *T. philbyi* but differs from both these species by the obtuse angle of the metazona of pronotum, form of fastigium of vertex, more elongated and acute subgenital plate of the male. Particularly from *T. nasuta*, this species differs also by more slender habitus, more straight and narrow elytron and colouration of the wing in female. As well as the above mentioned characters, it differs from *T. philbyi* by the more robust body, and form of lateral carinae of pronotum (Figs. 150, 151).

T. eximia is broadly distributed (map. 9) in western Asia and probably most old records of *T. nasuta* from Asia refer to *T. eximia.*

Truxalis eximia cypria subsp. n.

♀ (Type). Smaller and more slender than the typical subspecies. Pronotum less saddle-shaped; lateral carinae in metazona more excurved. Basal disc of wing light bluish, sligthly brownish. In other characters as the typical subspecies.

♂ (Paratype). Like the typical subspecies differs by the smaller size, more slender habitus, less saddle-shaped pronotum and more excurved lateral carinae.

Length of body ♂ 44, ♀ 68; frons ♂ 11, ♀ 15; pronotum ♂ 7, ♀ 10.5; elytron ♂ 35, ♀ 53; hind femur ♂ 26.5, ♀ 39.

CYPRUS: Lakkovounera Forest, 10.V.1949, 2 ♀♀ (including type). Liveras, 11.V.1949, 1 ♂. Geunyali, 900 ft., Nicosia Dist., 19.V.1949, 1 ♂ (A. R. Waterston), Limassol, 2.V.1925, 1 ♂ (G. A. Mavromoustakis). Larnaca, 7.VII.1948, 1 ♀. Kythrea, 11.V.1949, 1 ♂, 1 ♀ (Th. Shiakides) (*B. M.*).

Truxalis philbyi sp. n.

(Figs. 156-161, 219.)

♀ (Type). Medium size and slender.

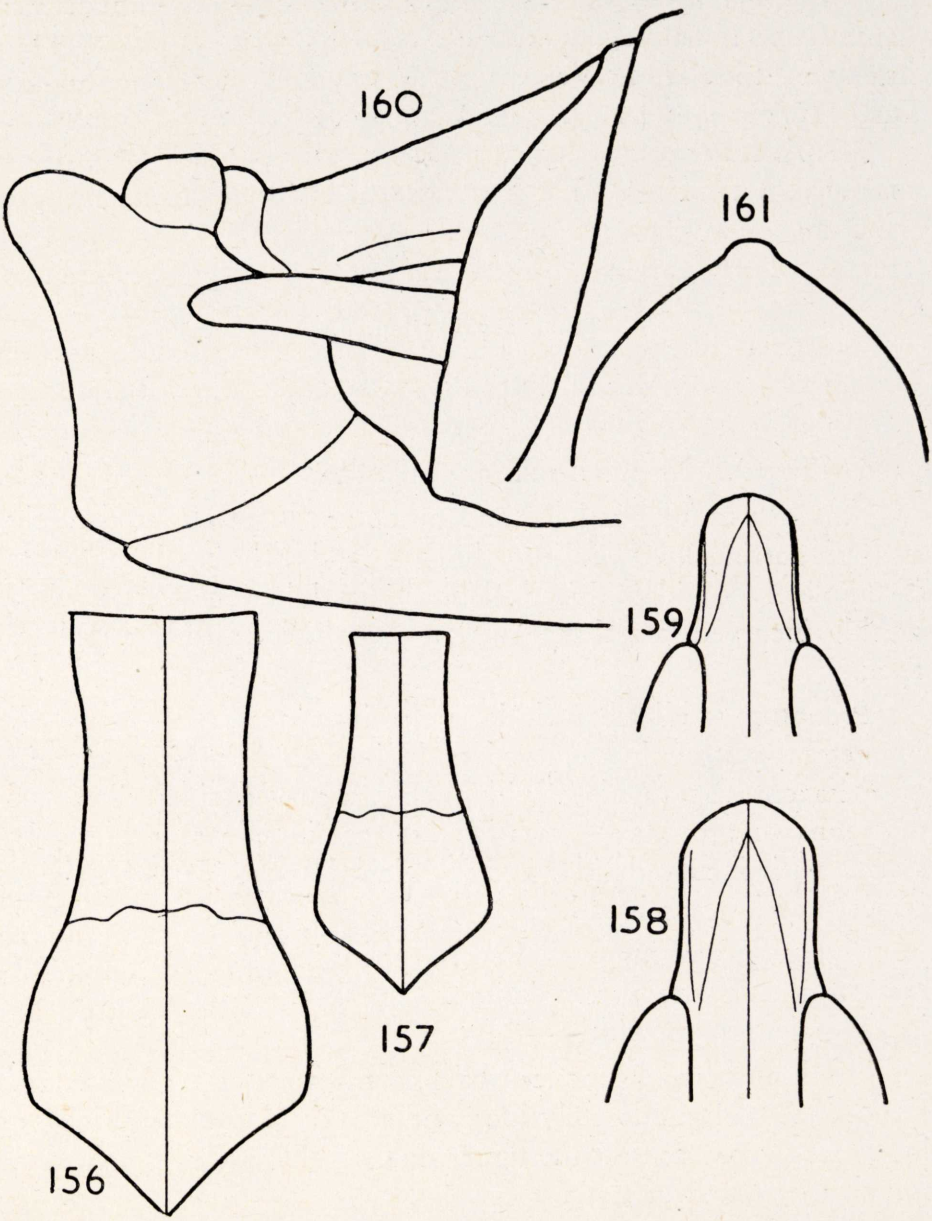
Antenna as long as head and pronotum together, moderately and proportionally widened, the 3rd and 4th basal segments incompletely divided. Head slender. Fastigium of vertex with weakly incurved lateral margins and parabolic scarcely angulate, apex.

Pronotum saddle-shaped; lateral carinae in prozona, incurved, in metazona strongly excurved and divergent. Posterior margin of metazona acutangulate with feebly incurved sides. Ratio of metazona to prozona — 1.1. Mesosternal interspace moderately broad, with incurved sides and broadened apex. Metasternal interspace as long as broad.

Elytron projecting well beyond the hind knee, its anterior margin almost straight, oblique at the apex, which is obtuse. Ratio of length to width — 9.5.

Hind femur well produced beyond the apex of the abdomen. Hind knee with moderately long and weakly acute lateral lobes; lower lobe more acute than upper one. Arolium very small, one fourth the length of claw.

General colouration light ochraceous-yellow. Lateral carina of pronotum light, with the dark stripe along the internal side. Metanotum, first and partly second abdominal tergites dirty blue. Elytron with pattern of the type 5; base of wing blue; basal disc of wing light purplish remaining part of the membrana slightly yellowish.



Figs. 156-161.—*Truxalis philbyi.* 156) Pronotum of female. 157) Ditto of male. 158) Fastigium of vertex of female. 159) Ditto of male. 160) Subgenital plate in profile. 161) Ditto, apex from above.

♂ (Paratype). Of medium size and slender.

Antenna as long as head and pronotum together, moderately and proportionally widened, all segments well separated. Head slender. Fastigium of vertex with slightly incurved lateral margins and broadly rounded, scarcely angulate apex.

Pronotum saddle-shaped; the lateral carinae in prozona, incurved and slightly divergent backwards; in metazona excurved and divergent. Disc of prozona weakly tectiform; of metazona flat and feebly raised; posterior margin of metazona acutangulate with incurved sides. Ratio of prozona to metazona — 1.0. Mesosternal interspace with weakly incurved lateral sides and broadened apex. Metasternal interspace rather longer than broad.

Elytron projecting little beyond the hind knee; its anterior margin feebly excurved; apex moderately narrowed and obtuse. Ratio of legth to width — 8.7.

Hind femur well produced beyond the apex of the abdomen. Hind knee with moderately long and weakly acute lateral lobes; lower lobe more acute than upper one. Arolium very small, one fourth the length of claw.

Subgenital plate short, in profile, with incurved posterior margin and projecting upwards, obtuse apex; from above broadly angulate with small rounded projection.

General colouration ochraceous-yellowish or greenish. Lateral carinae of pronotum light, with the ochraceous stripe along the internal side. Elytron with pattern of the type 5; basal disc of wing light greenish-yellow, and light bluish on the internal marginal part, the tessellate pattern light brownish, weak.

Length of body ♂ 41, ♀ 63.5; frons ♂ 10, ♀ 15.5; pronotum ♂, 6.5, ♀ 10; elytron ♂ 33.5, ♀ 53; hind femur ♂ 24, ♀ 37.

ARABIA: Hedjaz, Qui'iya, 18.IX.1931, 1 ♀. Taif, 10.IX. 1934, 1 ♀ (type), 1 ♂. Hafair (near Qunfida), 10.VIII.1934, 1 ♂ (H. St. J. B. Philby). Rahazian, 17°10′ N., 52°15′ E., 28.XII. 1924, 1 ♀. Khawat, 17°30′ N., 51°555′ E., 31.I.1946, 1 ♂ (W. Thesiger). Asir, Wadi Kara, 15.VIII.1944, 1 ♂ (A. R. Waterston). Madaen Salih, V.1946. 1 ♂ (G. V. Popov). Beihan, 180 m. N. N. E. Aden, edge of Rub al Khali, 4,000 ft., VII, 1936, 2 ♂♂ (R. C. M. Darling) (*B. M.*).

T. philbyi belongs to the group of *nasuta* and is nearest to *T. eximia* but differs by more slender body, shape of the lateral carina of pronotum, fastigium of vertex and by the subgenital plate of male.

Geographically *T. philbyi* is very well separated: it occurs in the western part of Arabia, while *T. eximia* in Arabia occurs in Oman and Kuwait only (map. 9).

Truxalis johnstoni sp. n.

(Figs. 162-167, 220.)

♀ (Type). Medium size and slender.

Antenna as long as head and pronotum together, moderately widened and gradually narrowed to the apex, in the apical fourth cylindrical, 3rd and 4th basal segments incompletely divided. Head slender. Fastigium of vertex with almost straight lateral sides, slightly narrowed to the apex, which is broadly rounded, almost truncate.

Pronotum saddle-shaped, the lateral carinae, in prozona, straight, scarcely incurved; in metazona excurved and divergent; posterior margin of metazona acutangulate with incurved sides; ratio of metazona to prozona 1.1. Mesosternal interspace long and moderately narrow, slightly constricted in the middle and broadened at the apex. Metasternal interspace as long as broad.

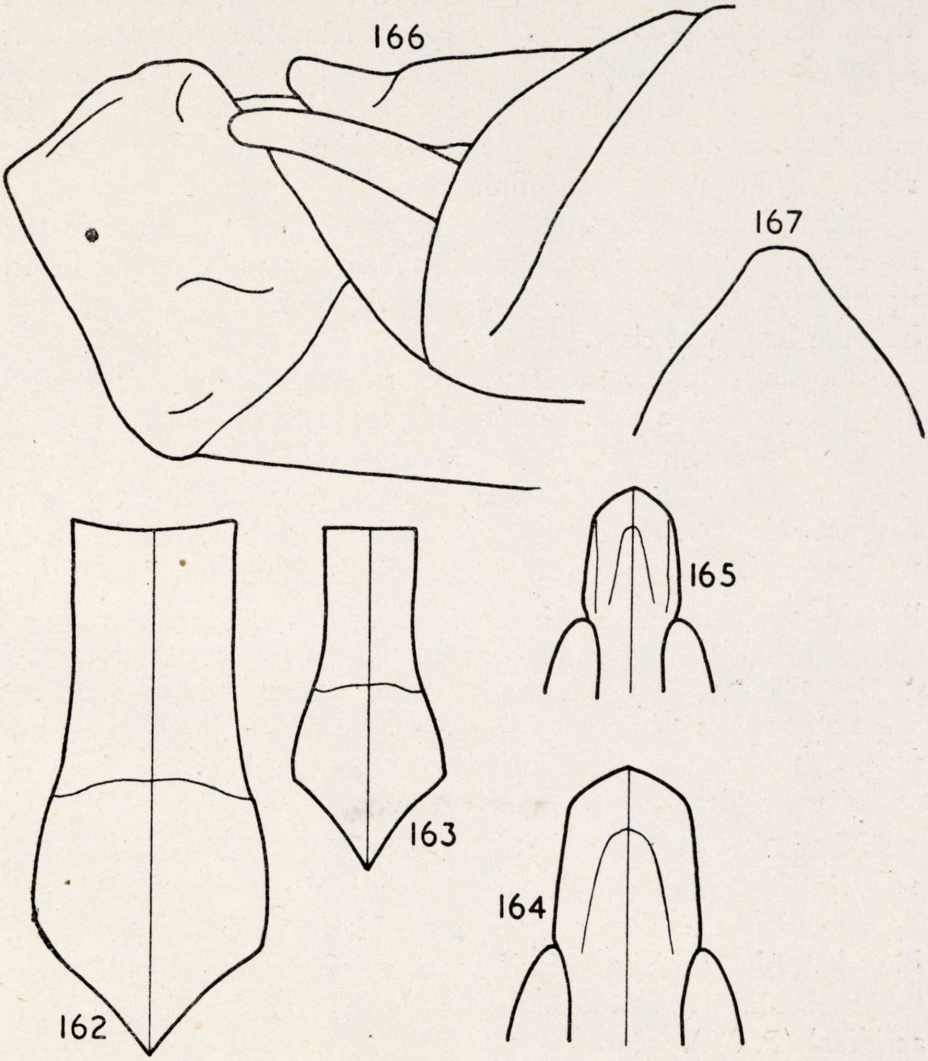
Elytron projecting well beyond the hind knee, its anterior margin almost straight, apex weakly narrowed and obtuse; ratio of length to width — 10.2.

Hind femur weakly produced beyond the apex of the abdomen. Hind knee with short subacute lateral lobes; upper lobe much broader than lower one. Arolium long and narrow, half the length of claw.

General colouration yellowish. Apex of antenna orange-yellow; lateral carinae of pronotum light yellow, with a dark, diffused stripe along the internal side; elytron with pattern of the type 5, 6; base of wing blue; basal disc of wing pinkish; remaining part of wing colourless; main veins of the axillar part of wing pink, rest of the main veins yellow; the tessellate pattern light brownish, broad; metanotum, first and second abdominal tergites blue.

♂ (Paratype). Medium size and slender.

Antenna rather shorter than head and pronotum together, moderately widened only in the basal fourth. The 3rd and 4th basal segments incompletely divided. Head slender. Fastigium of vertex weakly narrowed to the apex, which is broadly obtusangulate.



Figs. 162-167.—*Truxalis johnstoni*. 162) Pronotum of female. 163) Ditto of male. 164) Fastigium of vertex of female. 165) Ditto of male. 166) Subgenital plate of male in profile. 167) Ditto, apex from above.

Pronotum saddle-shaped; the lateral carinae of pronotum, in prozona, straight, divergent in front of the sulcus; in metazona excurved and divergent; posterior margin of metazona acutangulate, with incurved sides; ratio of metazona to prozona — 1.2. Mesosternal interspace long, moderately narrow, constricted in the middle and broadened at the apex. Metasternal interspace half as long again as broad.

Elytron moderately projecting beyond the hind knee; its anterior margin excurved, apex weakly narrowed and obtuse; ratio of length to width — 8.6.

Hind femur moderately projecting beyond the apex of the abdomen. Hind knee with short moderately acute lateral lobes, upper lobe broader than lower one. Arolium long and narrow, half the length of claw.

Subgenital plate, in profile, short, with obtuse, subconical apex; from above apex subconical, truncate.

General colouration yellowish, brownish or green. Antenna at the apex light yellow. Lateral carina of pronotum light yellow. Elytron with pattern of the type 5 or without it. Basal disc of wing greenish-yellow, with weak tessellate pattern; remaining part of the wing colourless.

Length of body ♂ 41; ♀ 61; frons ♂ 9, ♀ 14; pronotum ♂ 7, ♀ 10.5; elytron ♂ 34, ♀ 52; hind femur ♂ 24, ♀ 35.5.

This species belongs to the group of *T. nasuta* and differs from this species by the much larger arolium (Fig. 55), form of pronotum and of fastigium of vertex.

MAURITANIA: Inghiri (19° N., 15° W.), Od Tamadi, 24.IX. 1937, 2 ♀♀. Inghiri, Agouelil, Erfaik, IX.1937, 1 ♂. Akjayt-Boucdouerat, 25.IX.1937, 1 ♂; O. Uzriff, 29.IX.1937, 1 ♂. Bouedouerak, Gonizikt, 26.IX.1937, 2 ♀♀. Sbar (Bogent), 20,00 N., 16,20 W. (Dunes littorales), 8.III.1937, 1 ♀ (Mission Anti-acridien) (*P. M.*).

SENEGAL: «Senegal», 1 ♀ (Steindachner) (*V. M.*).

TERR. DU SUD: Hoggar, Tamanrasset, 23,00 N., 05,30 E., 1938-39, 3 ♂♂, 1 ♀ (L. Chopard) (*P. M.*).

NIGER COLONY: Agades, 16,59 N., 07,56 E., VIII.1947, 5 ♂♂, 6 ♀♀. Air (about 18° N., 8° E.): Kori Tessouba, 7.IX. 1947, 1 ♀. Kori Azaoual, VIII.1947, 1 ♀. Fampzegret, IX.1947, 1 ♀. Tarrouadji, 900 m., VII.1947, 11 ♂♂ (L. Chopard) (*P. M.*).

CHAD TERRITORY: Mortcha: Ouadi Souala, 17,00 N., 21,00

E., 12.IX.1935, 1 ♀; Koale-oum-Chalouba, 15,45 N., 21,00 E., 10.IX.1935, 3 ♀♀. Soro, Goz Ariel, 14,16 N., 16,18 E., 2.VI. 1935, 2 ♀♀. Ennedi: Fada-Archei, 16,50 N., 21,45 E., 1 ♀; Ouadi Sini, 17°-18° N., 21°-23° E., 25.IX.1935, 1 ♀ (Mission D'études de la biologie des Acridiens) (*P. M.*). L. Fitri, 12,50 N., 17,30 E., 13.II.1949, 2 ♀♀ (including type) (H. B. Johnston) (*B. M.*).

CAMEROUN: L. Fianga, 09,54 N., 15.08 E., 26-III-1949, 1 ♀ (H. B. Johnston) (*B. M.*).

NIGERIA: Kalkala, II-VI-IX-X.1933, 1 ♂, 4 ♀♀; VI.1934, 1 ♂. Jillum, Chad area, 21.X.1934, 1 ♀. Kauuva, Chad area, 19.VIII.1934, 3 ♂♂, 2 ♀♀. Gimeri, 8.X.1934, 1 ♂ (A. M. Gwynn). Kalkala, 1.IV.1933, 1 ♀ (F. D. Golding) (*B. M.*).

ANGLO-EGYPTIAN SUDAN: Um Darag, 14,45 N., 30,08 E., 22.V.1933, 2 ♀♀. El Sidi, 26.V.1933, 2 ♀♀. N. Darfur Jebel, 14,15 N., 26,45 E., 24.IX.1934, 1 ♀; Darfur Jebel, nr. Taganor, VIII.1934, 3 ♂♂, 2 ♀♀. Adabana, V.1934, 1 ♂, 1 ♀ (R. C. M. Darling). Wad Medani Dist., VI.1925, 2 ♀♀. Khor Arbaat Delta, 19,40 N., 37,10 E., IV-V.1926, 8 ♀♀, 8 ♂♂. Shendi, 16,40 N., 33,31 E., 7.XI.1924, 1 ♂, 2 ♀♀. Berber Prov., 18,30 N., 33,30 E., VIII.1925, 1 ♀ (H. B. Johnston). Near Gedaref, 1949, 1 ♀ (*B. M.*). Sennar, 13,35 N., 33,34 E., I.1921, 1 ♀ (S. S. Flower) (*M. M.*). Kassala, 3.X.1926, Khor Akwat, 6.VII.1925, 2 ♂♂. Khor Rabaieit, 17.IV.1926, 1 ♂, 1 ♀. Dangonab, 29.IV.1922, 1 ♀. Geteina, 22.XII.1929, 1 ♀ (H. B. Johnston). Hosh, 11.III.1923, 1 ♀ (W. W. Bowen). Khartoum, 10.I.1928, 1 ♂, 1 ♀. Shambat, 23.VII.1931, 2 ♂♂ (H. W. Bedford). Adrar, J. Midob, N. E. Darfur, 17.VII. 1930, 1 ♀ (A. P. G. Michelmore) (*B. M.*).

ERITREA: Khor Asrai, 26.III.1949, 1 ♂, 2 ♀♀. Wadi Hem, 24.III.1949, 2 ♂♂ (W. J. Stower) (*B. M.*).

Truxaloides gen. n.

(Figs. 8, 9.)

Genotype: *Truxalis serratus* Thunb., 1827.

Body strongly or moderately elongated, ratio of length to width 9.3-6.2.

Antenna lanceolate, flattened and moderately widened. Head elongated, narrow conical, ratio of length to width 3.9-2.1. Fastigium of vertex narrow.

Pronotum strongly saddle-shaped; single transversal sulcus disposed in the middle, or slightly before the middle. Lateral carina in prozona strongly sinuate or incurved, in metazona excurved. Meso- and metasternal lobes broadly separated.

Elytron moderately long and narrow, ratio of length to width 9.8-7.2, with obtuse apex. All main veins and their branches straight, in the apical part scarcely curved to the posterior margin. Area mediastina and area scapularis well widened. Wings almost as long as elytron; moderately narrow, without speculum; the basal disc coloured or colourless, without tessellate pattern.

Hind femur long and thin, ratio of length to width 14.0-8.8. Hind knee with short acute external and elongated, much longer, internal upper lateral lobes; middle lobe short (Figs. 8-9). Arolium one half to three fourths the length of claw.

Supra-anal plate of male elongated-triangular, with obtuse apex. Cercus short, weakly incurved and obtuse. Subgenital plate short. Epiphallus with broad separated lobes of lophi.

Supra-anal plate of female triangular. Subgenital plate with truncate or scarcely trilobate apex. Ovipositor short, robust, with broad, slightly curved valves.

KEY TO SPECIES

1 (6). Lateral carina of pronotum in prozona sharply sinuate. Pronotum strongly saddle-shaped (Figs. 168, 175, 182).

2 (5). Wing without any fascia.

3 (4). Small and robust. Head robust and comparatively short (Fig. 174). Wing strongly infumate... .... *serratus*

4 (3). Larger and slender. Head comparatively longer and slender (Fig. 181)...... .... *constrictus*

5 (2). Wing with broad, sharp, dark brown fascia.................. *fuscofasciatus*

6 (1). Lateral carina of pronotum in prozona slightly incurved or scarcely sinuate. Pronotum moderately saddle-shaped (Figs. 188, 194).

7 (8). Basal disc of wing in the male indigo-blue, in female greenish-blue......... .... *coeruleipennis*

8 (7). Basal disc of wing in the male lemon-yellowish, in the female red or pink.

9 (10). Basal disc of wing in the female crimson-pink... *braziliensis braziliensis*

10 (9). Basal disc of wing in the female bright cinnabar-red...... *braziliensis eos*

Truxaloides serratus (Thunb.).

(Figs. 168-174, 207.)

1815. *Truxalis serratus* Thunberg, Mém. Acad. Pétersb., 5: 269.
1815. *Truxalis dentatus* Thunberg, Mém. Acad. Pétersb., 5: 270, syn.n.
1827. *Truxalis serratus* Thunberg, Nova Acta Upsal., 9: 78, 84.
1827. *Truxalis dentatus* Thunberg, Nova Acta Upsal., 9: 79, 88.
1870. *Tryxalis lativitta* Walker, Cat. Derm. Salt., 3: 496, syn. n.
1873. *Acrida serrata* Stål, Rec. Orth., 1: 100.
1893. *Tryxalis (Acridella) serrata* I. Bolívar, Feuil. Jeun. Nat., 23: 163.
1902. *Acrida serrata* Burr., Trans. Ent. Soc. Lond., 2: 176.
1910. *Acridella serrata* (Partim) Kirby, Cat. Orth., 3: 97, no. 7.
1925. *Acridella lativitta* Uvarov, Trans. Ent. Soc. Lond.: 267.

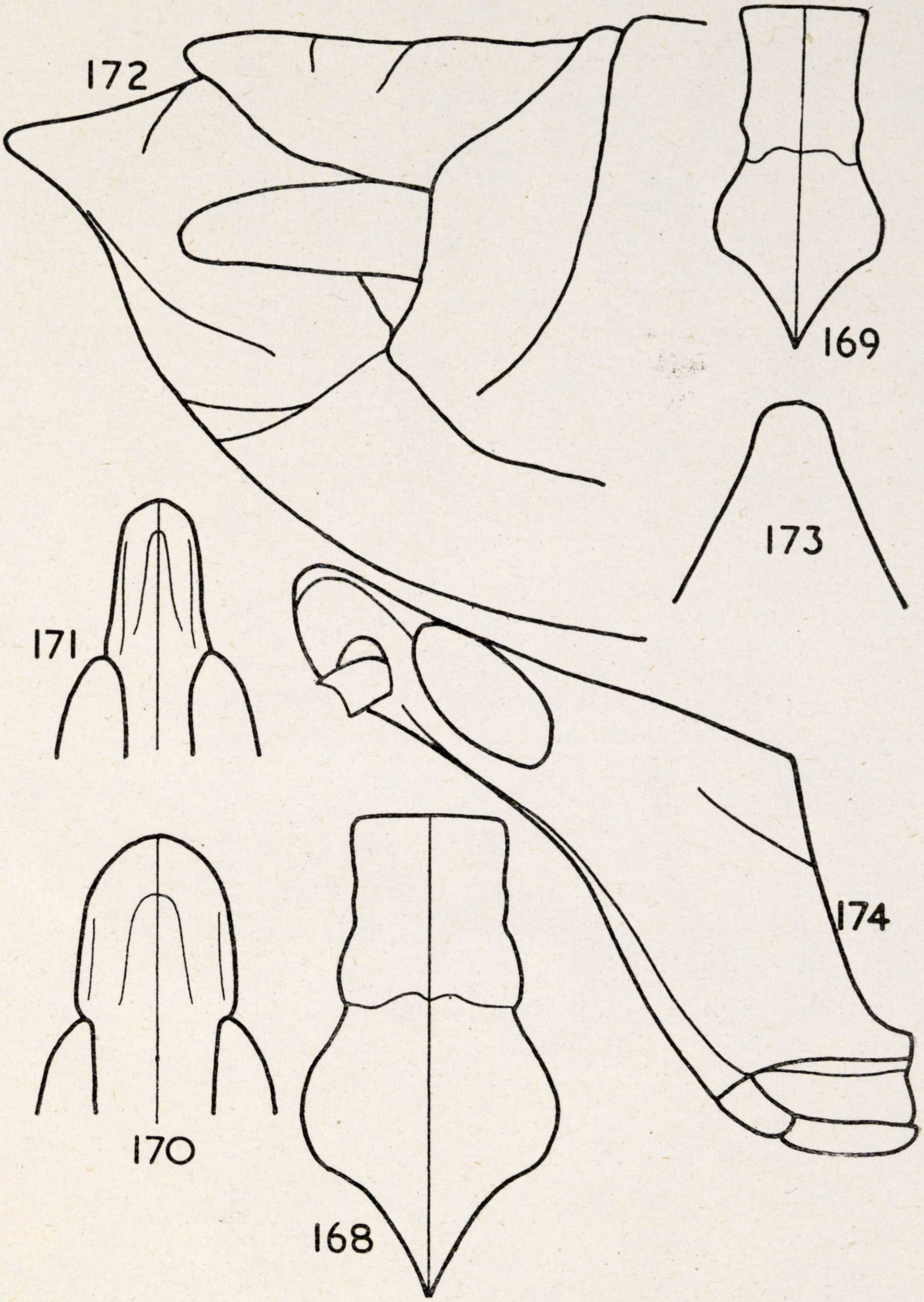
♀. Small and robust.

Antenna shorter than head and pronotum together, weakly widened with shorthened segments; the 3rd, 4th and 5th basal segments and apical one incompletely divided, sutures of all the remaining segments less distinct than in the other species. Head short, robust, thickened in the base; frons, in profile, strongly concave. Fastigium of vertex short and broad, its lateral side straight, slightly convergent to the apex, which is broadly obtusangulate.

Pronotum strongly saddle-shaped: the lateral carinae, in prozona, strongly sinuate; in metazona sharply excurved and divergent; disc of prozona tectiform; metazona flat, its posterior margin acutangulate and strongly pointed, with incurved sides; ratio of metazona to prozona — 1.6-1.7. Mesosternal lobe broader than long, internally broadly rounded, its posterior margin straight and oblique; mesosternal interspace broad and short, its length less than width, to the base widened. Metasternal interspace about half as broad again as long.

Elytron little produced beyond the hind knee, its anterior margin almost straight, apex weakly narrowed and obtuse; ratio of length to width — 7.2-8.

Hind femur little projecting beyond the apex of the abdomen. Hind knee in both sides with acute lateral lobes, upper lobe twice as long as lower one. Arolium broad, two thirds the length of claw, widened and rounded in the apex.



Figs. 168-174.—*Truxaloides serratus*. 168) Pronotum of female. 169) Ditto of male. 170) Fastigium of vertex of female. 171) Ditto of male. 172) Subgenital plate of male in profile. 173) Ditto, apex from above. 174) Head in profile.

General colouration green or brownish. Lateral carina light, with a dark stripe along the internal side or without it; elytron with pattern of the type 4, 5; basal disc of wing light yellowish-green or colourless, remaining part of the wing infumate.

♂. Small and moderately robust.

Antenna rather shorter than head and pronotum together, moderately widened and little narrowed at the apex, with shortened segments. The 3rd, 4th and 5th basal segments incompletely divided. Head short, robust, thickened in the base; frons, in profile, strongly concave. Fastigium of vertex moderately long and narrow, its lateral sides almost straight scarcely incurved, apex broadly obstusangulate, almost rounded.

Pronotum strongly saddle-shaped; the lateral carinae of pronotum, in prozona, strongly sinuated; in metazona sharply excurved and divergent; disc of prozona tectiform; metazona flat, its posterior margin acutangulate and strongly pointed, sides incurved; ratio of metazona to prozona — 1.3-1.4. Mesosternal lobe broader than long, internally broadly rounded, its posterior margin straight and oblique; mesosternal interspace broad and short, its length less than width, in the base slightly widened. Metasternal interspace as long as broad.

Elytron well produced beyond the hind knee, its anterior margin almost straight, area mediastina and area scapularis weakly widened; apex feebly narrowed and obtuse; ratio of length to width — 8-8.3.

Hind femur projecting well beyond the apex of the abdomen. Hind knee, on both sides, with long and acute lateral lobes; upper lobe about twice as long as the lower one. Arolium large and broad, two thirds the length of claw, widened with rounded apex.

Subgenital plate short, in profile, with elongated acute apex, its posterior margin incurved; from above apex subconical, truncate.

General colouration brownish. Lateral carinae of pronotum light, with a dark stripe along the internal side or without it; elytron with pattern of the type 5; basal disc of wing light yellowish-green, remaining part of the wing infumate; hind femur in the apical part above with light fascia.

Length of body ♂ 32, ♀ 39; frons ♂ 8, ♀ 10; pronotum ♂ 5.5, ♀ 7; elytron ♂ 28, ♀ 34; hind femur ♂ 21, ♀ 25.

In the British Museum there are four specimens of *T. lativitta* Walker labelled as «type», one male and one female from «South Africa», one female from «Cape» and one female without locality. By Uvarov (1925) the male was selected as the type and other specimens considered as paratypes. I have now been able to compare the types of *T. serratus, T. dentatus* and *T. lativitta* Walker and I find that all three species are identical.

SOUTH AFRICA: Cape of Good Hope, XI.1873, 1 ♀ (Chall.). Resolution. Fort Brown, 1 ♂ (Miss Wallon). «South Africa», 1 ♀ (C. H. Barrett). Port Elizabeth, 1891, 1 ♀ (*B. M.*). Natal, 1 ♀. Caffraria, 2 ♀♀ (*St. M.*).

ORANGE FREE STATE: Orange River Colony, 1 ♂, 1903 (G. E. H. B. Hamilton) (*B. M.*).

TRANSVAAL: Pretoria, 2 ♀♀ (W. H. D.) (*B. M.*).

The name *serratus* has priority. *T. serratus* and *T. dentatus* differ by general colouration only, brown in the first and green in the second one.

Truxaloides constrictus (Schaum).

(Figs. 175-181, 206.)

1853. *Truxalos constricta* Schaum, Ber. Akad. Wiss.: 778, n. 15.
1862. *Truxalis constricta* Schaum, Reise Mossamb. Ins.: 129, pl. 7a.
1873. *Acrida serrata* (Partim) Stål, Rec. Orth.. 1: 100.
1910. *Acridella serrata* (Partim) Kirby, Cat. Orth., 3: 97, n. 7.

♀. Medium sizes and slender.

Antenna longer than head and pronotum together, weakly widened, the 3rd, 4th, 5th and 6th basal segments mostly incompletely divided. Head long and slender. Fastigium of vertex elongated, its lateral sides weakly incurved and divergent backwards, apex rounded or parabolic.

Pronotum strongly saddle-shaped; the lateral carinae, in prozona, sinuate; in metazona strongly excurved and divergent; disc of prozona subcylindrical; metazona flat, its posterior margin acutangulate and sharply pointed, sides strongly incurved; ratio of metazona to prozona — 1.6-1.7. Mesosternal lobe twice as broad as long, its internal margin broadly rounded; mesosternal interspace as long as broad, with rectangular apex. Metasternal interspace as broad as long.

Elytron narrow, well produced beyond the hind knee; its anterior margin almost straight; apex slightly narrowed and obtuse; ratio of length to width — 9.2.

Hind femur projecting beyond the apex of the abdomen. Hind knee with acute lateral lobes, upper lobe twice as long as lower one. Arolium less than half the length of claw, rather widened at the apex.

General colouration green or brownish. Lateral carina light, with a more or less broad dark stripe along the internal side: elytron with pattern of the type 4, 5; basal disc of wing light greenish-yellow.

♂. Medium size and slender.

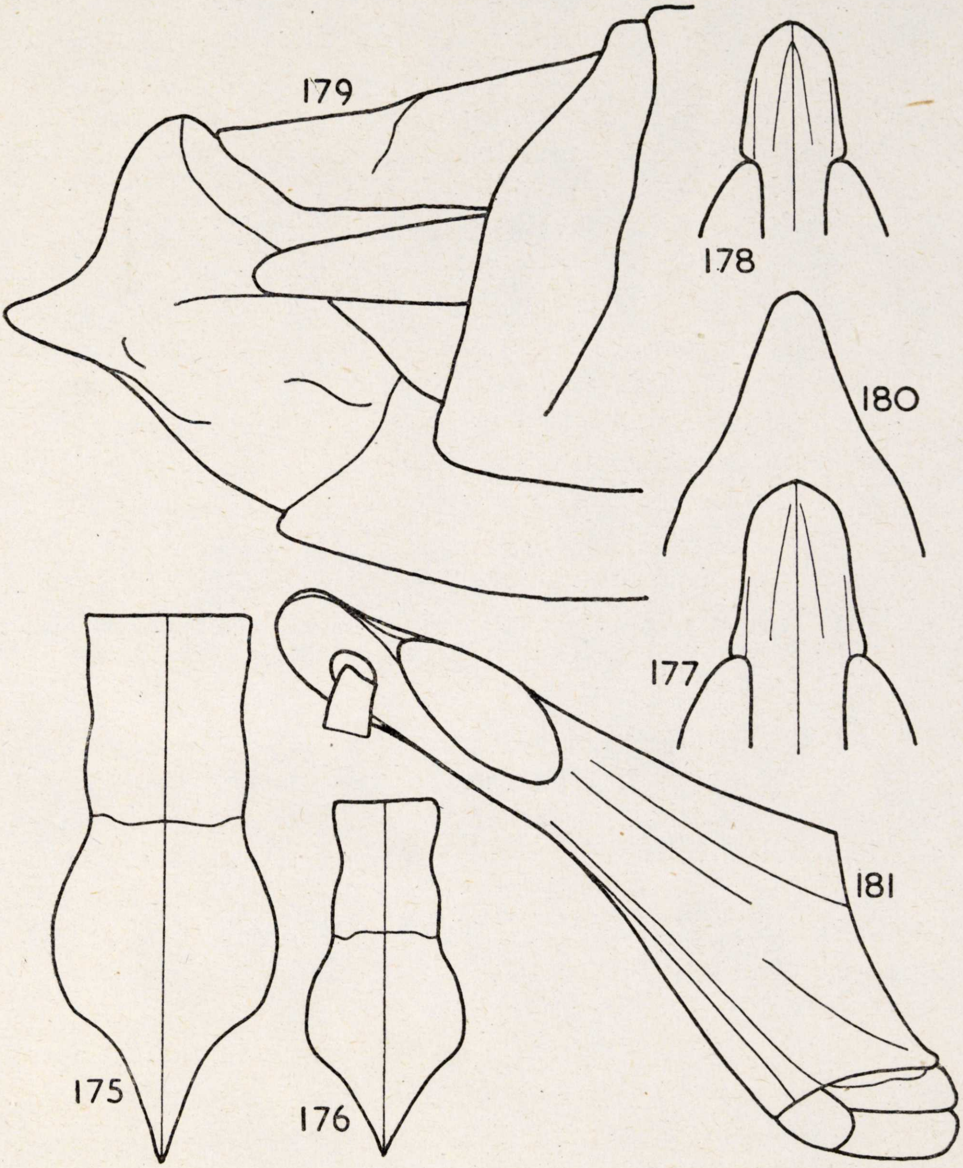
Antenna longer than head and pronotum together. The 3rd, and 4th basal segments incompletely divided. Head long and slender. Fastigium of vertex elongated, its sides weakly incurved and divergent backwards, apex parabolic.

Pronotum strongly saddle-shaped, the lateral carinae in prozona, sinuate; in metazona excurved and divergent; disc of prozona subcylindrical; metazona flat, its posterior margin acutangulate and sharply pointed, sides incurved; ratio of metazona to prozona — 1.7-1.8. Mesosternal lobe twice as broad as long, its internal margin broadly rounded; mesosternal interspace as long as broad, with the rectangular apex and broadened in the base. Metasternal interspace as long as broad.

Elytron narrow, well produced beyond the hind knee; its anterior margin almost straight, apex slightly narrowed and obtuse; ratio of length to width — 8.2-8.3.

Hind femur projecting beyond the apex of the abdomen. Hind knee with acute lateral lobes; upper lobe longer and broader than lower one. Arolium relatively larger than in the female, more than half the length of claw, rather widened at the apex.

Subgenital plate in profile short, with strongly projecting acute apex and strongly produced upper part; from above, elongated, subconical with obtuse apex.



Figs. 175-181.—*Truxaloides constrictus*. 175) Pronotum of female. 176) Ditto of male. 177) Fastigium of vertex of female. 178) Ditto of male. 179) Subgenital plate of male in profile. 180) Ditto, apex from above. 181) Head in profile.

General colouration green or brownish. Lateral carina of pronotum light, with a more or less broad dark stripe along the internal side; elytron with pattern of the type 4, 5; basal disc of wing light greenish-yellow.

Length of body ♂ 32-35, ♀ 47-54; frons ♂ 9.5-10.5, ♀ 13.5-14.5; pronotum ♂ 6-6.5, ♀ 9.5-10.5; elytron ♂ 33-34, ♀ 45.5-50; hind femur ♂ 22-23.5, ♀ 29.5-32.5.

Truxaloides constrictus is nearest to *T. serratus* Thunb., but differs by more slender and more elongated head, more elongated elytron, scarcely infumate wing and more slender general habitus. Distributed in the southern part of Africa (Map. 11).

SOUTH RHODESIA: Odzi Dist., 18,55 S., 32,25 E., IX-X-XI-XII.1946, 5 ♂♂, 17 ♀♀. Salisbury Dist.: Port Meadow, 5.X.1947, 1 ♂; Niddearnbili, 12.II. 1947, 1 ♀; Widdecombe Pk., XII.1949, 2 ♂♂, 1 ♀; Hatfield, 20.XII.1949, 1 ♀ (J. A. Whellan). Salisbury, Mashonaland, 5,000 ft., X.1899, 1 ♂, 2 ♀♀; XI.1905, 1 ♀ (G. A. K. Marshall). Odzi Dist., XI.1946, 1 ♂, 1 ♀ (N. C. E. Miller) (*B. M.*).

BECHUANALAND: Ghanzi, Mongulatsila, 21,31 S., 21,37 E.. 11.XII. 1924, 1 ♀ (J. Maurice) (*B. M.*).

ZULULAND: Toppu, 1906, 1 ♀ (*B. M.*).

SWAZILAND: IX.1942, 1 ♂ (E. D. Burtt) (*B. M.*).

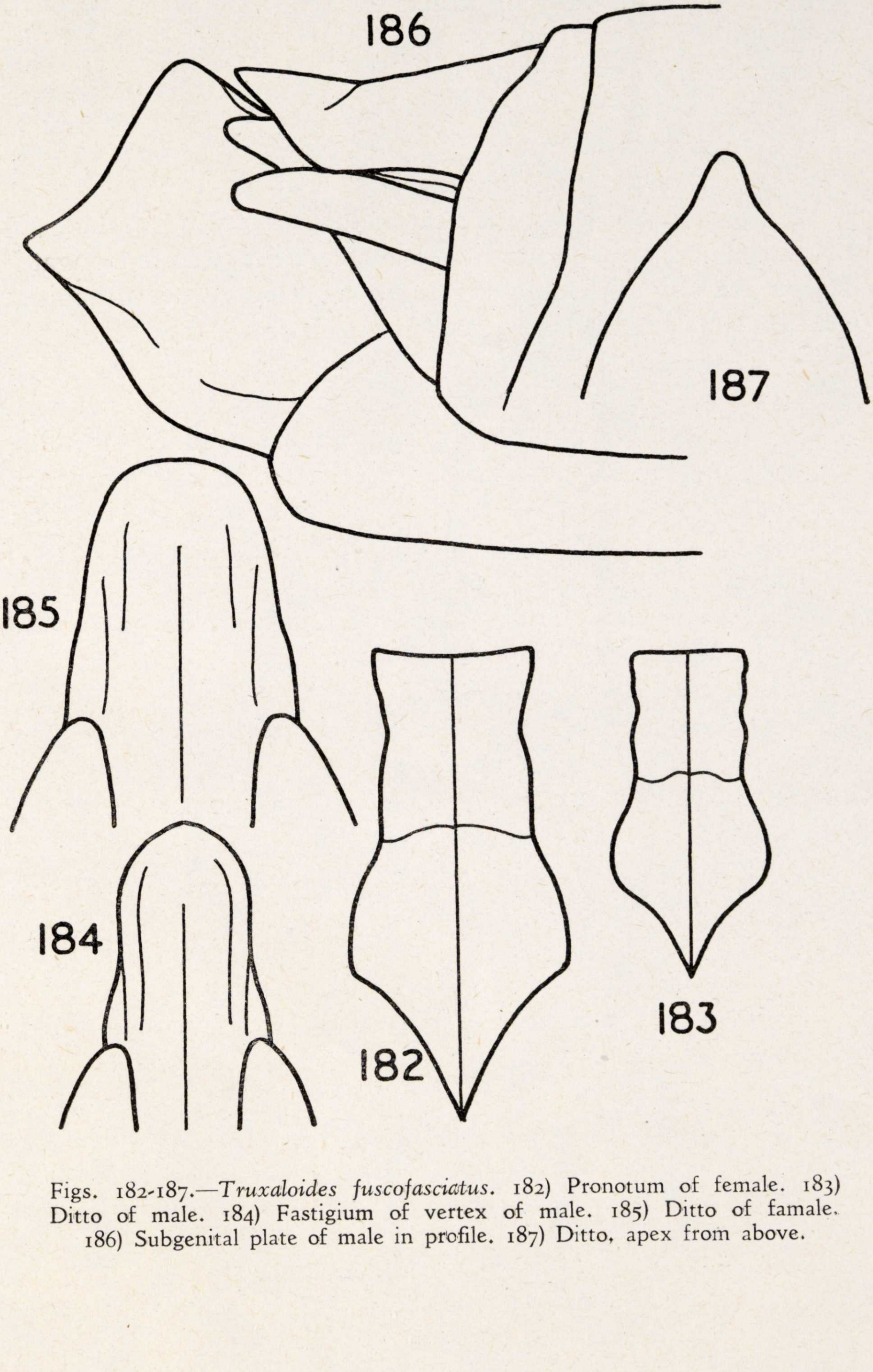
TRANSVAAL: Pretoria, 20.V.1906, 1 ♀; 1924, 1 ♀ (H. H. Curson). Pretoria, ♂, 3 ♀♀. S. of Pretoria, 25.X.1942, 1 ♀. Johannesburg, 1942, 1 ♂, 1 ♀ (E. D. Burtt) (*B. M.*).

ORANGE FREE STATE: «Orange Colony», 1903, 1 ♀ (G. E. H. B. Hamilton) (*B. M.*).

S. AFRICA: Aliwal, North Cape Prov., XII.1922, 1 ♂ (R. E. Turner). Somerset East, XI.1930, 1 ♂ (R. E. Turner) (*B. M.*).

MOZAMBIQUE: Lourenço-Marques, 1 ♀. Lindjindji, X.1895, 1 ♂ (Finot Coll. *P. M.*).

ANGOLA: Distr. of Luchase, River Quangu, 5,000 ft., 14-16.X.1927, 3 ♂♂, 1 ♀. Distr. of Moxico, Valley of River Mu-Simoj, 25.X.1927, 4 ♀♀; 20-27.IX.1927, 2 ♀♀, 1 ♂. Distr. of Moxico, River Lungue Bungu, 3.X.1927, 2 ♀♀, 1 ♂ (M. Burr) (*B. M.*).



Figs. 182-187.—*Truxaloides fuscofasciatus*. 182) Pronotum of female. 183) Ditto of male. 184) Fastigium of vertex of male. 185) Ditto of famale. 186) Subgenital plate of male in profile. 187) Ditto, apex from above.

Truxaloides fuscofasciatus (I. Bol.).

(Figs. 182-187.)

1889. *Tryxalis fusco-fasciata* I. Bolívar, J. Sci. Math. Phys. Nat. Lisboa (2), 1: 93.
1893. *Tryxalis (Acridella) fusco-fasciata* I. Bolívar, Feuille Jeunes Nat., 23: 163-164.
1902. *Acrida fusco-fasciata* Burr., Trans. Ent. Soc. Lond., 2: 175.
1910. *Acridella fuscofasciata* Kirby, Cat. Orth., 3: 97, no. 5.

♀ (Type. Redescription.). Small and slender.

Antenna comparatively narrow, as long as head and pronotum together, the 3rd, 4th, 5th and 6th basal segments incompletely divided. Head slender. Fastigium of vertex excurved in the basal lateral margins, narrowed to the apex which is broadly rounded.

Pronotum saddle-shaped; the lateral carinae in prozona strongly sinuate and parallel, in metazona strongly excurved; posterior margin of metazona strongly acute and pointed. Ratio of metazona to prozona — 1.3. Mesosternal lobe broader than long, broadly rounded internally, mesosternal interspace as long as broad; metasternal interspace half as broad again as long.

Elytron well produced beyond the hind knee, gradually narrowed to the apex; ratio of length to width — 8.4.

Hind femur well produced beyond the apex of the abdomen. Hind knee with narrow strongly acute lateral lobes, lower lobe much shorter than upper one. Arolium broad, half the length of claw.

General colouration brownish-ochraceous (specimen from spirit). Elytron with pattern of the type 5; basal disc of wing dirty greyish (probably discoloured by spirit), with very broad and sharp dark brown fascia, which passes through the whole wing; apical part of wing colourless, transparent.

♂. Of medium size and slender.

Antenna rather longer than head and pronotum together, comparatively narrow, the 2rd, 4th, 5th and 6th, and 7th and 8th basal segments incompletely divided. Lateral margins of fastigium of vertex strongly excurved in the basal part and narrowed to the apex, which is of parabolic form.

Pronotum saddle-shaped; the lateral carinae, in prozona, strongly sinuate, in metazona strongly excurved, posterior angle of metazona sharply acute and pointed. Ratio of metazona to prozona — 1.6. Mesosternal lobe broader than long, broadly rounded and oblique internally; mesosternal interspace as long as broad; metasternal interspace almost square.

Elytron well produced beyond the hind knee, gradually narrowed to the apex; ratio of length to width — 8.6.

Hind femur well produced beyond the apex of the abdomen. Hind knee with strongly acute lateral lobes, lower lobe much shorter than upper one. Arolium broad, half the length of claw.

Subgenital plate short, in profile, with short acutangulate apex; from above, with short obtuse projection.

Colouration as in the female (specimen also from spirit).

Length of body ♂ 33, ♀ 48; frons ♂ 11, ♀ 14; pronotum ♂ 6, ♀ 9; elytron ♂ 31, ♀ 41; hind femur ♂ 21, ♀ 29.

This is a very distinct species, differing from all other species of the genus by broad transversal fascia of the wing. By the structural characters *T. fuscofasciatus* is nearest to *T. serratus* Thunb., but differs also by the structure of fastigium of vertex (see figs. 184, 185) and structure of the upper lobes of the hind knee. In *T. serratus* the internal lobe is much longer than the external one, in *T. fuscofasciatus* the internal upper lobe is longer than the external one, but not so much.

ANGOLA: Quando (Anchieta!), 1 ♂, 2 ♀♀. 1 ♂ and 1 ♀ preserved in the Madrid Museum. Female with label «Holotype», male with label «Allotype». Obviously the type was selected later because in the original description it is not mentioned. Second female with the same locality label is preserved in Lisboa Museum.

Truxaloides coeruleipennis (Ramme).

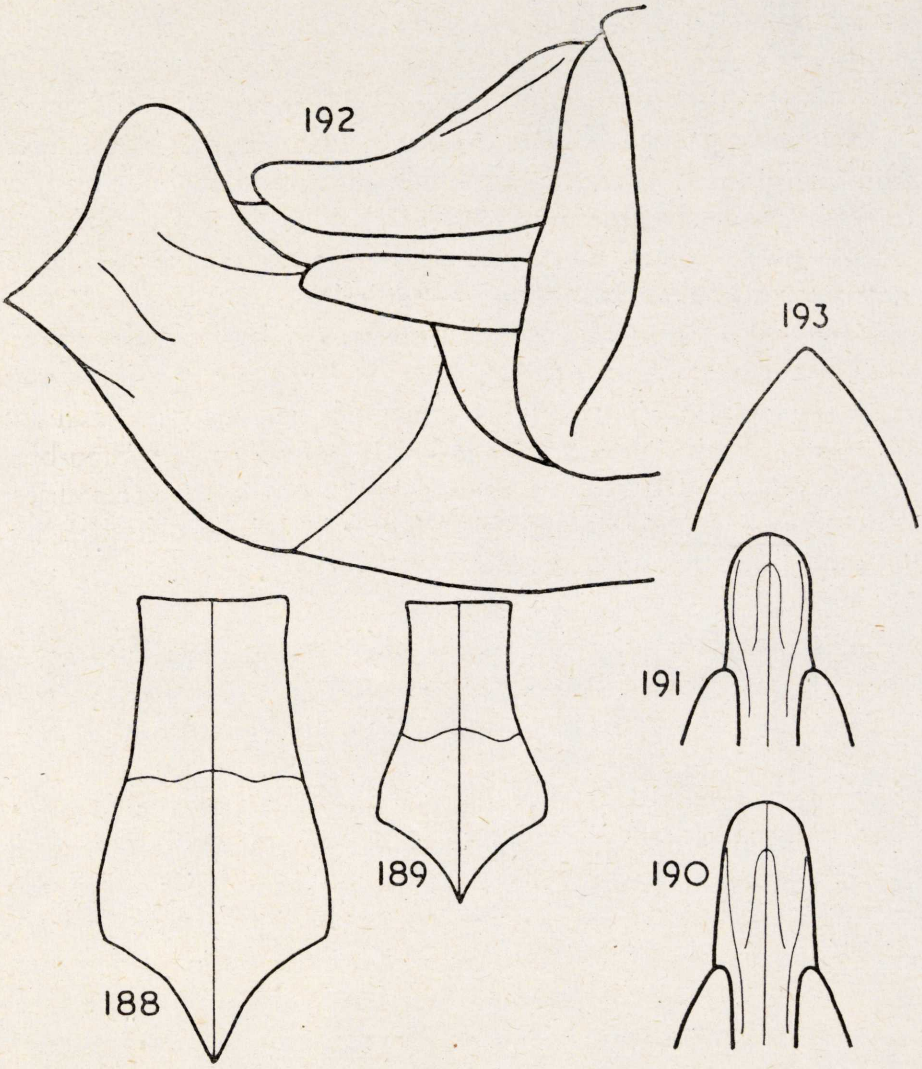
(Figs. 188-193.)

1929. *Acridella coeruleipennis* Ramme, Mitt. Zool. Mus. Berlin, 15, 2, p. 250, pl: II, fig. 2.

♂ (Type. Redescription.) Small and slender.

Antenna rather longer than head and pronotum together, moderately widened, the 3rd and 4th basal segments incompletely divided. Head slender. Fastigium of vertex long, with weakly incurved lateral sides and parabolic apex.

Pronotum moderately saddle-shaped; the lateral carinae in prozona, weakly incurved; in metazona excurved and divergent; disc of prozona subcylindrical, metazona flat and rather raised, its posterior margin acutangulate, with incurved sides and pointed apex; ratio of metazona to prozona — 1.4. Mesosternal lobe



Figs. 188-193.—*Truxaloides coeruleipennis*. 188) Pronotum of female. 189) Ditto of female. 190) Fastigium of vertex of female, 191) Ditto of male. 192) Subgenital plate of male in profile. 193) Ditto, apex from above.

internally almost straight; mesosternal interspace as long as broad, rectangular at the apex. Metasternal interspace rather longer than broad.

Elytron well produced beyond the hind knee; its anterior margin weakly excurved; apex rounded; ratio of length to width — 8.3.

Hind femur projecting well beyond the apex of the abdomen. Hind knee with rather long and acute lobes, upper lobe longer than lower one. Arolium large and broad, rounded in the apex, approximately two thirds as long as claw.

Subgenital plate short, with short, acute apex and large projection above; from above subconical.

General colouration brown. Antenna with the light apex; lateral carina of pronotum light, with a broad dark stripe along the internal side; elytron with pattern of the type 5; basal disc of wing and all of the wing except the apical part indigo-blue, reticulation of disc has the same colour; apical part colourless, with dark vein and veinlets; hind femur in apical half with two light fascia.

♀. Small and slender.

Antenna moderately widened, its 3rd and 4th basal segments incompletely divided. Head slender. Fastigium of vertex long its lateral sides almost straight, weakly divergent to the base, apex broadly rounded.

Pronotum moderately saddle-shaped, the lateral carinae of pronotum, in prozona, feebly incurved and slightly divergent backwards; in metazona excurved and divergent; disc of prozona subcylindrical; metazona flat, rather raised, its posterior margin acutangulate and pointed, with incurved sides; radio of metazona to prozona — 1.7. Mesosternal lobe internally almost straight; mesosternal interspace as long as broad, with rectangular apex. Metasternal interspace half as broad again as long.

Elytron well produced beyond the hind knee; its anterior margin almost straight, apex rounded; ratio of length to width about — 8.4.

Hind femur little produced beyond the apex of the abdomen. Hind knee with acute lateral lobes; upper lobe much longer than lower one. Arolium large and broad, rounded in the apex, about two thirds the length of claw.

General colouration green. Lateral carina of pronotum light, with a broad dark stripe along the internal side; elytron with pattern of the type 5; basal disc of wing greenish-blue (probably discoloured), apical part slightly greenish, venation and reticulation light; hind femur with two indistinct light fascia in the apical half.

Length of body ♂ 32, ♀ 48; frons ♂ 8, ♀ 12; pronotum ♂ 5.3, ♀ 8.5; elytron ♂ 28.7, ♀ 40; hind femur ♂ 17.6, ♀ 27.5.

SOUTHERN RHODESIA: Mashonaland, Mazoe, XII.1905, 1 ♂ (Type), 1 ♀ (G. A. K. Marshall). Widdecombe Pk., Salisbury Distr., 15.XII.1949, 1 ♂ (J. A. Whellan) (*B. M.*).

Truxaloides braziliensis braziliensis (Drury).

(Figs. 194-199, 208.)

1773. *Gryll. Acr. braziliensis* Drury, Ill. Nat. Hist. Exot. Ins., 2: 74, pl. 40.

1804. *Truxalis erythropterus* Latreille, Gen. Crust. Ins., 12: 148, n. 2. (Syn. nov.)

1873. *Truxalis brasiliensis* Westwood, Ill. Exot. Entom. by Drury, 2: 85, pl. 40.

1902. *Acrida rendalli* Kirby, Trans. Ent. Soc. London, 1: 62. (Syn. n.)

1902. *Acrida aspersata* Kirby, Trans. Ent. Soc. London, 1: 63. (Syn. n.)

1911. *Acridella sheffieldi* I. Bolívar, Mém. Soc. Ent. Belg., 19: 75. (Syn. n.)

1911. *Acridella stigmatica* I. Bolívar, Mém. Soc. Ent. Belg., 19, 75. (Syn. n.)

1919. *Acridella rothschildi* I. Bolívar, Bull. Soc. ent. France: 242. (Syn. n.)

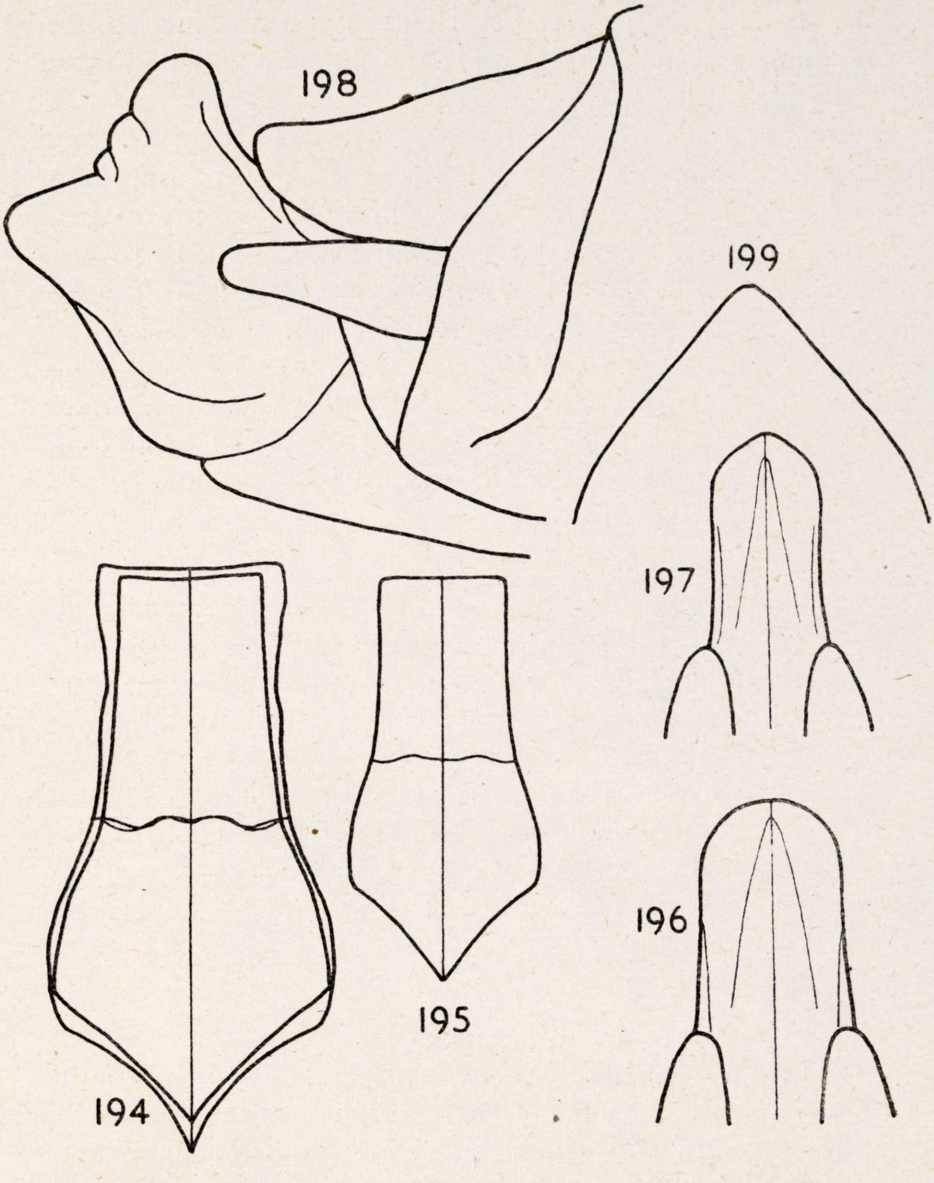
1925. *Acridella rendalli* Uvarov, Trans. Ent. Soc. Lond., 3, 4: 267.

1938. *Acridella rendalli* Uvarov, Miss. Scient. de l'Omo, Paris, 4: 152.

♀. Of medium size and slender.

Antenna considerably longer than head and pronotum together weakly widened; all basal segments well separated or, sometimes the 3rd and 4th incompletely divided. Fastigium of vertex with straight lateral margins slightly converging to the apex, which is broadly rounded.

Pronotum moderately saddle-shaped; the lateral carina in prozona slightly incurved, or slightly sinuate of almost straight; in metazona strongly excurved and divergent; posterior margin of metazona acutangulate, with incurved sides and pointed apex; ratio of metazona to prozona 1.3. Mesosternal interspace broad,



Figs. 194-199.—*Truxaloides braziliensis*. 194) Pronotum of female. 195) Ditto of male. 196) Fastigium of vertex of female. 197) Ditto of male. 198) Subgenital plate of male in profile. 199) Ditto, apex from above.

almost square with weakly incurved lateral sides. Metasternal interspace as long as broad.

Elytron well produced beyond the hind knee; ratio of length to width 9.2-9.8; its anterior margin feebly excurved, apex obtuse.

Hind femur produced beyond the apex of the abdomen. Hind knee with strongly elongated upper lateral lobes, lower lobes small. Arolium large and broad, three fourths the length of claw.

General colouration green or brownish. Elytron with pattern of the type 3, 4, 5 or uniformly coloured; basal disc of wing intensely crimson, apical part colourless; vein and veinlets of the same colour as the membrane. Colouration of the wing depends on the sexual maturity; the young specimens have almost colourless basal disc of wing; but with age colouration becomes more and more crimson and is most intense in the sexually mature specimens.

♂. Of medium size and slender.

Antenna as long as head and pronotum together, moderately widened; all basal segments well separated, or 3rd and 4th incompletely divided. Fastigium of vertex strongly elongated, the lateral margins straight or weakly incurved; apex obtusangulate.

Pronotum moderately saddle-shaped; the lateral carinae in prozona straight or weakly sinuate and slightly divergent backwards; in metazona excurved and divergent; posterior margin of metazona with incurved sides and acutangulate apex; ratio of metazona to prozona 1.2. Mesosternal interspace weakly constricted in the middle and slightly widened at the apex. Metasternal interspace twice as long as broad.

Elytron projecting well beyond the hind knee; ratio of length to width 7.4-8.7; its anterior margin excurved, apex obtuse.

Hind femur well produced beyond the apex of the abdomen. Hind knee with strongly elongated upper lobes, lower lobes small. Arolium large and broad, three fourths the length of claw.

Subgenital plate short, in profile, with obtuse and weakly produced apex, from above apex conical — obtuse.

General colouration brown. Antenna in the apical portion light yellowish, the rest brownish; pronotum with two broad dark stripes along the internal sides of lateral carina; elytron with pattern of the type 5; basal disc of wing lemon-yellow, remaining part of the wing slightly infumate, with a dark narrow stripe along the apical part of anterior margin; venation and reticulation the same colour as membrana.

Length of body ♂ 37-49, ♀ 53-67; frons ♂ 10.2-12.6, ♀ 14-16.5; pronotum ♂ 5.7-8, ♀ 9-11.5; elytron ♂ 32-41, ♀ 50-61; hind femur ♂ 22.5-27.5, ♀ 31-38.

This species was first described by Drury (1773) with this remark: «I received it from Rio Janeiro in the Brazils.» Undoubtely a mistake, because the genus is absent from the Western Hemisphere.

Westwood (1804) in his review of Drury's work recorded this insect with the same specific name and remarked: «Fabricius refers this figure to *Truxalis nasutus* Linné which is found in Africa, and Mr. Smeathman also informed Mr. Drury that the species here figured is found in Africa in the savannahs, and that its flight is very rapid. I have considered them on the contrary as specifically distinct.»

Drury has given a coloured picture of this species which agrees with specimens from South East Africa. Later Kirby (1902) described the female as *Acrida rendalli* and also *Acrida aspersata* from S. E. Africa. Large series of material has allowed synonymizing of these two species (types of which are preserved in the British Museum) between them and with *T. braziliensis* also.

Truxalis erythropterus Latreille 1804 is also a pure synonym of *T. braziliensis* because Latreille has merely given a new name to Drury's species.

Acridella sheffieldi (female) and *Acridella stigmatica* (male) described by I. Bolívar from Katanga district, Belgian Congo, are further synonyms of *T. erythropterus*.

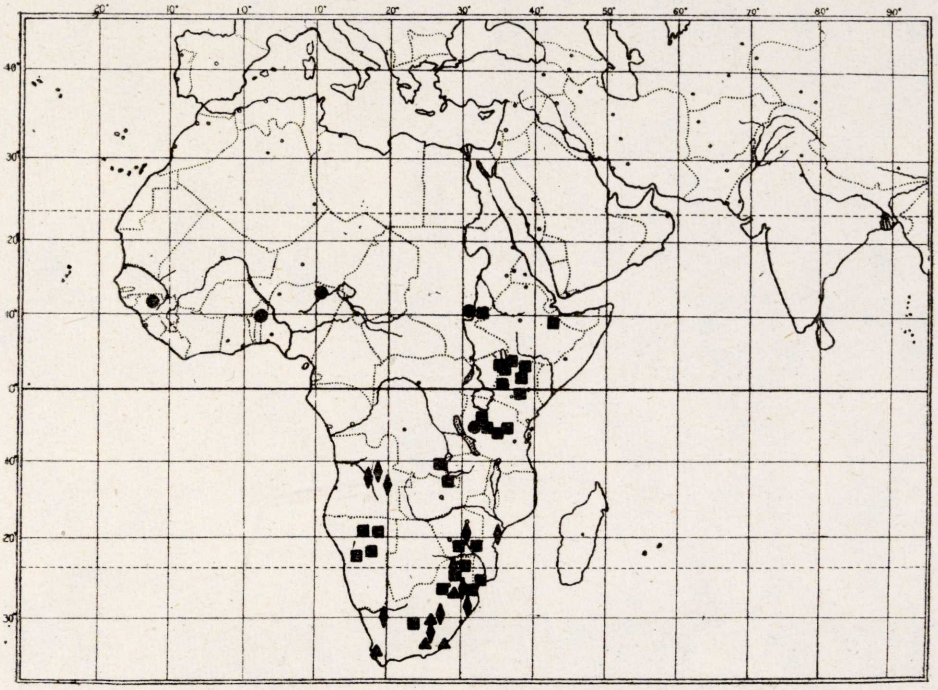
I have also examined the type of *Acridella rothschildi* I. Bolívar (1919), which is preserved in the Paris Museum and discovered that this species also is *T. braziliensis* but this female specimen is younger and has the wing less brightly coloured. Morphological characters are quite the same as *T. braziliensis* Drury.

ETHIOPIA: Harrar, III.1905, 1 ♀ (Type of *Acridella rothschildi* I. Bolívar) (M. de Rothschild) (*P. M.*).

ERITREA: 1 ♀ (Twarson) (*St. M.*).

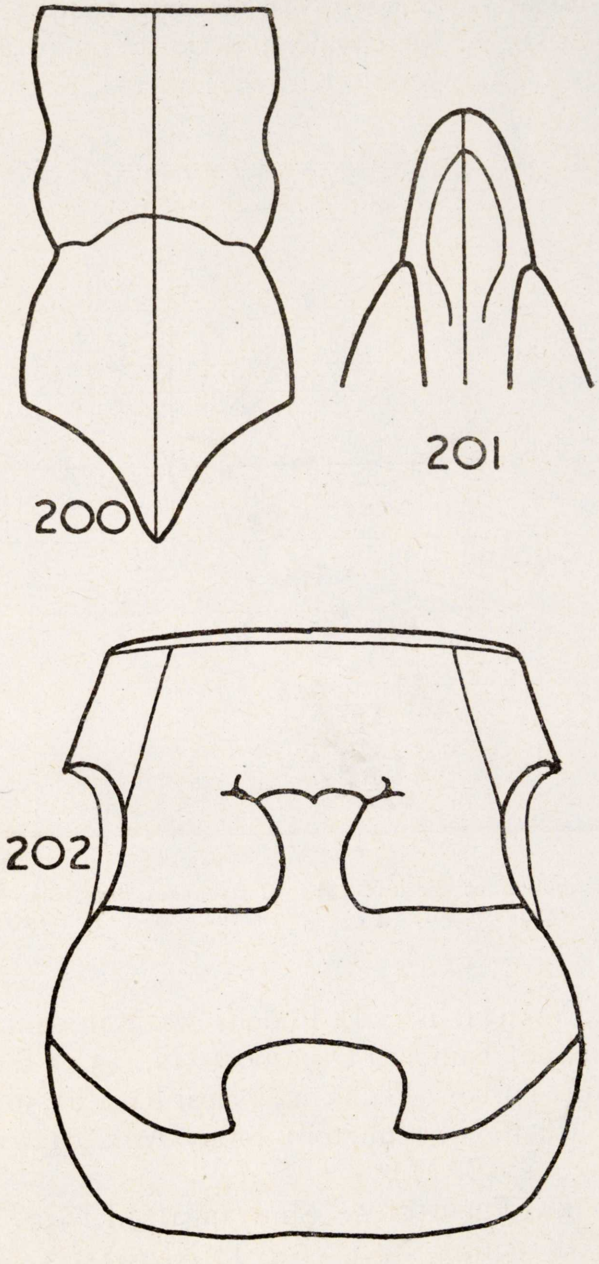
ANGLO-EGYPTIAN SUDAN: Near Gedaref, 1949, 3 ♀♀ (*B. M.*).

KENYA COLONY: Mesongaleni, 3,000 ft., 02,30 S., 38,00 E., 1 ♀ (Paratype of *A. aspersata* Kirby). Turkana, Kacheliba, 01,30 N., 35,00 E., V.1934, 1 ♀. L. Rudolf, Mt. Kaithenu, IV.1934, 1 ♂ (D. R. Buxton). Samburu Dist., 00,30 N., 35,55 E., VI.1944, 1 ♀ (E. Opiko). Turkana Plains, nr. Nepal Pass, 03,50 N., 35,00 E., 1 ♂, 1 ♀ (E. B. Worthington). Stony Athi, 01,40 S., 37,00 E., XII.1940, 1 ♂ (*B. M.*).



Map. 10.—Distribution of species: ■ — *Truxaloides braziliensis braziliensis.* ● — *T. braziliensis eos.* ▲ — *T. serratus.* ◆ — *T. constrictus.*

TANGANYIKA TERRITORY: Shinyanga, 4.I.1937, 1 ♂. Old Shinyanga, XII.1936, 1 ♂, 3 ♀♀; 12.XI.1935, 1 ♂; I.1937, 1 ♂, 6 ♀♀; I-XI.1949, 15 ♂♂, 9 ♀♀. Mshughaa, 35 m. S. E. of Singida (about 5° S., 35° E.), XII.1935, 2 ♂♂, 2 ♀♀. Tuntu, 30 m. S. E. of Singida, 4.XII.1935, 2 ♂♂. Tinde, 03,50 S., 35,15 E., XII.1944, 1 ♀. Morogoro, 04,45 S., 37,50 E., XI.1939, 1 ♀ (E. D. Burtt). Near Nzuki, 6.XII.1925, 1 ♀. Kilosa, 5.XII.



Figs. 200-202.—*Xenotruxalis fenestrata.* 200) Pronotum of female. 201) Fastigium of vertex of female. 202) Meso- and metasternum of female.

1926, I.1926, 2 ♀♀. Morogoro, XII.1920, 1 ♂ (N. C. E. Miller) (*B. M.*).

BELGIAN CONGO: Katanga Dist. (Types of *A. sheffieldi* Bol. and *A. stigmatica* Bol.). Elizabethville, 1932, 1 ♀ (De Loose). Katanga; Kalunda, XII.1908, 1 ♀ (Ch. Seidel); Kapiri, XI.1913, 1 ♀ (L. Charliers); Haut-Luapula, Kansenia, 19.XI.1929, 1 ♀; X-XI.1930, 1 ♂, 2 ♀♀ (Dam de Montpellier). Kakyelo, XI.1930, 1 ♀ (G. F. de Witte) (*M. C.*).

S. W. AFRICA: Damaraland, Grootfontein, 19,30 S., 18,00 E., 1928, 1 ♀ (J. H. Justice). Tsumeb, 19,00 S., 17,30 E., XII.1919, 1 ♀ (R. W. Tacker). Okahandja, 22,00 S., 17,10 E., 29.XII.1927, 1 ♂ (R. E. Turner) (*B. M.*). Windhuck, 2 ♂♂ (*M. M.*).

SOUTHERN RHODESIA: Odzi Dist., 18,55 S., 32,25 E., 26.XI. 1926, 2 ♀♀; X-XI-XII.1946, 5 ♂♂, 12 ♀♀ (N. E. C. Miller). Widdecombe Pk., Salisbury Dist., 11.XII.1949, 1 ♂. Lomagund, 2.XII.1949, 1 ♀. Umvumuuvur, Melsetter Dist., 19,46 S., 32,25 E., 19.II.1948, 1 ♀. Garooma, Hartley, 18,05 S., 30,10 E., 2.I. 1948, 1 ♀ (J. A. Whellan). Salisbury, Mashonaland, 5,000 ft., X-XII.1899, 1 ♂, 1 ♀ (G. A. K. Marshall). Matabelaland, XI.1880, 1 ♀ (J. S. Jameson) (*B. M.*).

TRANSVAAL: Barberton, 2 ♀♀ (Types of *A. rendalli* Kirby and *A. aspersata* Kirby). Pretoria, 10.XII.1915, 1 ♀ (*B. M.*).

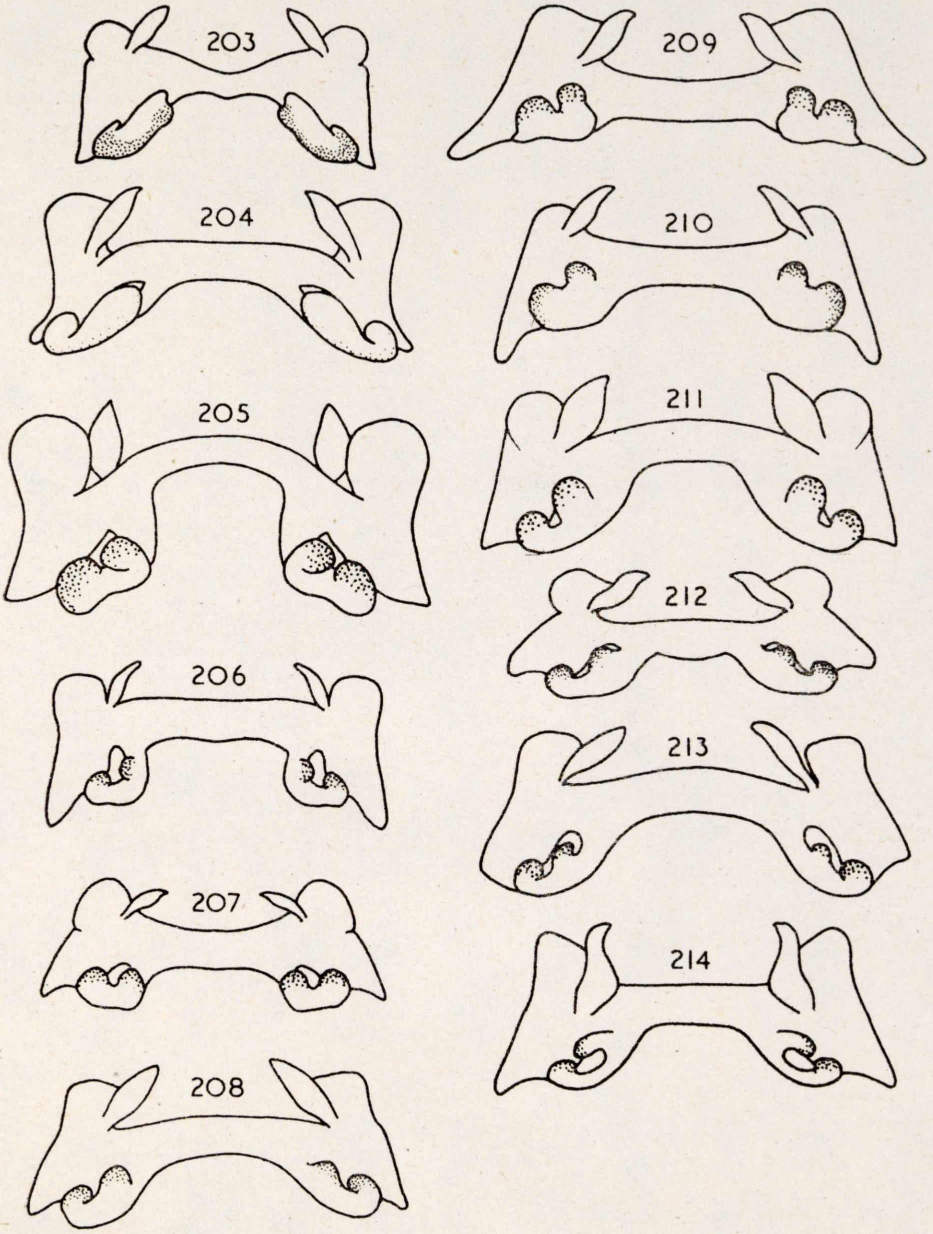
MOZAMBIQUE: Lorenço Marques, 1 ♂ (G. Audeoud). Lorenço Marques, Carvalho, 3 ♂♂, 3 ♀♀ (*M. M.*).

Truxaloides braziliensis eos subsp. n.

♀ (Type). Body more slender than in the typical subspecies, with rather slender pronotum and little narrower fastigium of vertex. Main difference from the typical subspecies is bright cinnabar-red colouration of basal disc of wing.

♂ (Paratype). Body more slender than in the typical subspecies, in other respects has no differences.

Length of body ♂ 39-40, ♀ 57-65; frons ♂ 11-12, ♀ 16-17.5; pronotum ♂ 6.5-7, ♀ 11-11.5; elytron ♂ 32.5-36.5, ♀55-58; hind femur ♂ 22-26, ♀ 35-37.



Figs. 203-214.—Epiphallus. 203) *Chromotruxalis cockerelli.* 204) *C. crocea.* 205) *Acridarachnea ophthalmica.* 206) *Truxaloides constrictus.* 207) *T. serratus.* 208) *T. braziliensis.* 209) *Truxalis longicornis.* 210) *T. conspurcata.* 211) *T. bolivari.* 212) *T. rubripennis.* 213) *T. procera.* 214) *T. burtti.*

SENEGAL: Bambey, 1945, 2 ♀♀ (J. Risbec).

UPPER VOLTA: Pundu, 1 ♀ (Olsufiew) (*St. M.*).

HAUT-DAHOMEY: Cercle de Djougou-Kouanoe, 1908, 1 ♀ (Lieut. Brot) (*P. M.*).

NORTHERN NIGERIA: Azare, 1924, 3 ♀♀; VI.1924, 3 ♀♀ (including type), 3 ♂♂; VII.1924, 5 ♂♂, 3 ♀♀; II.1929, 1 ♀ (L. Lloyd) (*B. M.*).

ANGLO-EGYPTIAN SUDAN: Talodi, 10°37′ N., 30°25′ E., 20.V.1926, 1 ♂, 1 ♀ (J. W. Cowland) (*B. M.*).

TANGANYIKA TERRITORY: Tinde, II-XI.1941, 1 ♀ (Burrt). Old Shinyanga, 10.III.1948, 1 ♀ (E. Burtt) (*B. M.*).

XENOTRUXALIS gen. n.

(Figs. 10, 11, 13.)

Genotype: *Acridella fenestrata* Ramme, 1929.

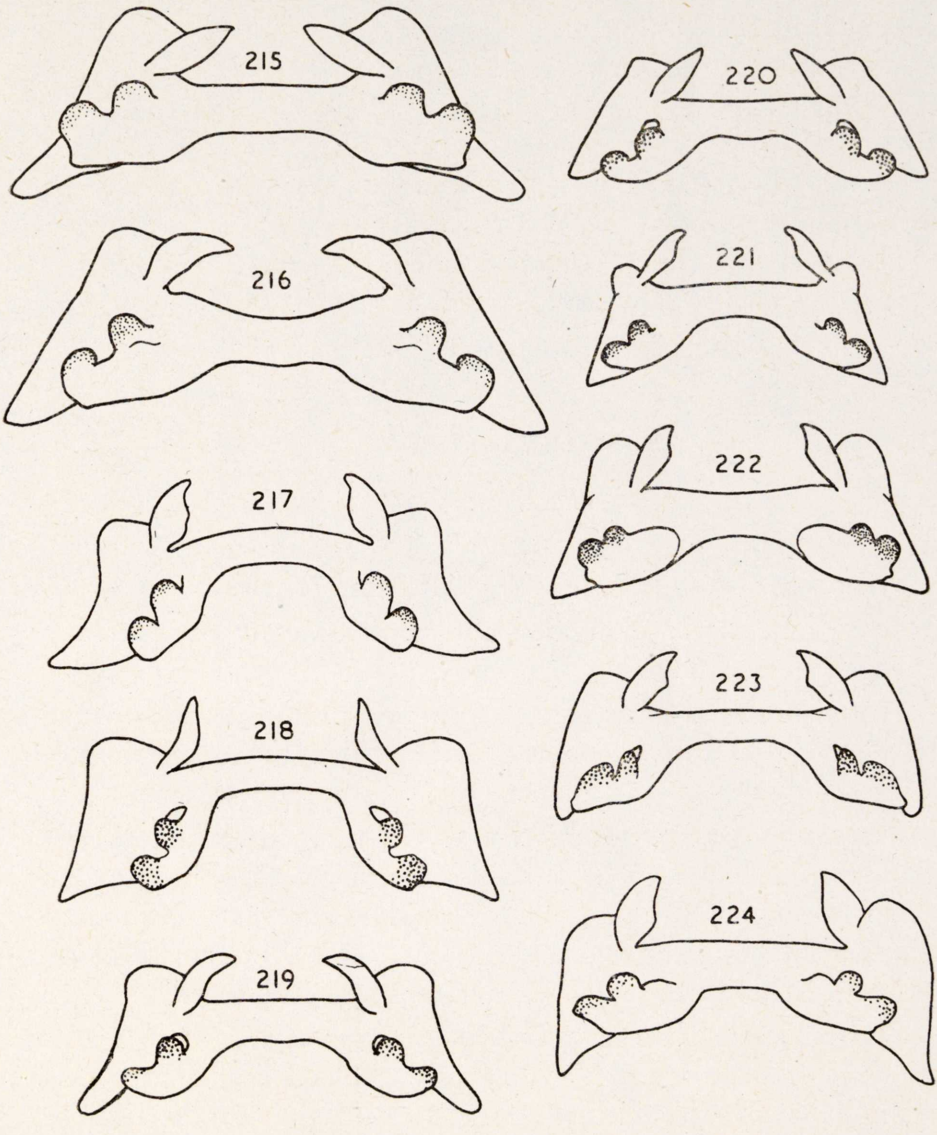
Body moderately elongated and comparatively robust, ratio of length to width 7.

Antenna weakly lanceolate, flattened and little broadened. Head elongated conical, robust, ratio of length to width 2.6. Fastigium of vertex narrow-triangular with rounded apex.

Pronotum strongly saddle-chaped, robust; single transversal sulcus disposed about the middle; lateral carinae in prozona extremely sinuate, in metazona strongly excurved. Meso- and metasternal lobes broadly separated; mesosternal interspace broad and elongated; metasternal interspace short and broad.

Elytron moderately long and broad, ratio of length to width 6.7, with rounded apex. Vena radialis media, apical branch and vena radialis posterior with all branches, from the middle strongly recurved to the posterior margin. Area mediastina and area scapularis well widened; membrane moderately hard with moderately dense irregular reticulation. Wing almost as long as elytron, moderately narrow, without speculum; the basal disc coloured; transversal veinlets without tessellated pattern.

Hind femur long and thin, ratio of length to width 11, weakly widened to the base. Hind knee with short, acute internal and elongated external upper lateral lobe; middle lobe strongly elongated and much longer than lateral ones.



Figs. 215-224.—Epiphallus. 215) *Truxalis robusta robusta.* 216) *T. mesopotamica.* 217) *T. nasuta.* 218) *T. eximia.* 219) *T. philbyi.* 220) *T. johnstoni.* 221) *T. indica.* 222) *T. annulata.* 223) *T. siamensis.* 224) *T. grandis.*

Supra-anal plate of female triangular, short. Subgenital plate with scarcely trilobate apex. Ovipositor short, robust, with broad, slightly curved valves.

Xenotruxalis fenestrata (Ramme).

(Figs. 200-202.)

1929. *Acridella fenestrata* Ramme, Mitt. Zool. Mus. Berl., 15: 2: 249.

A single species of this genus was described from Togo and Cameroons. I had one female from the Paris Museum.

Length of body ♂ 36.2, ♀ 43-43.2; frons ♂ 13; pronotum ♂ 6, ♀ 7-7.6; elytron ♂ 26.5, ♀ 31-34.6; hind femur ♂ 19.6, ♀ 23.3-23.5.